RETAIN Retaining Employment and Talent After Injury/Illness Network

Mathematica Progress Together

The Retaining Employment and Talent After Injury/Illness Network (RETAIN) Demonstration: Impacts Two Months After Enrollment

Technical Appendix

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Contents

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Exhibits

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Introduction

The Retaining Employment and Talent after Injury/Illness Network (RETAIN) demonstration was a collaborative effort by the U.S. Department of Labor (DOL) and the Social Security Administration (SSA) to help workers stay in the labor force after they experience an injury or illness. The goal of RETAIN was to implement and test programs that used early-intervention stay-at-work/return-to-work (SAW/RTW) strategies with adult workers who had recently experienced the onset or exacerbation of an injury or illness that challenged their ability to work. DOL selected five states (Kansas, Kentucky, Minnesota, Ohio, and Vermont) to implement such programs, which were named RETAINWOR*KS*, RETAIN Kentucky (RETAIN KY), Minnesota RETAIN (MN RETAIN), Ohio RETAIN (OH RETAIN), and Vermont RETAIN (VT RETAIN), respectively. The programs began enrolling participants in late 2021 and early 2022 through mid-May 2024. The RETAIN demonstration aimed to build evidence on the effectiveness of SAW/RTW services in supporting the employment and earnings of workers who experience injury or illness and preventing their entry into federal disability programs.

Under contract to SSA, Mathematica is evaluating the RETAIN programs. The evaluation includes an assessment of how each of the five states implemented and operated their program; each program's impacts on enrollee outcomes, including employment, earnings, and applications to SSDI and SSI; and each program's benefits relative to its costs. Each RETAIN program used a random assignment study design such that some enrollees were in a treatment group that could use RETAIN services and others were in a control group that could use limited or no services. In four programs (Kansas, Kentucky, Minnesota, Ohio), random assignment occurred at the individual level. In Vermont, Mathematica randomized primary care clinics into treatment and control groups. To estimate each program's early impacts on enrollee outcomes, we compared the outcomes of treatment and control enrollees.

In the early impact report, we present the estimated impacts of each of the five RETAIN programs on enrollee outcomes, based on a follow-up survey of RETAIN enrollees that Mathematica conducted about two months after enrollment (Patnaik et al. 2025). In the early impact analyses, we assessed whether each program had impacts on enrollees' outcomes related to service use and outcomes where we might see early signs that the programs are supporting enrollees' ability to stay at or return to work. We also conducted descriptive analyses of some outcomes with the goal of providing context on the impact findings.

In this appendix volume, we provide additional details related to the early impact analyses of the five RETAIN programs. In Appendix A, we describe the study designs, data sources, sample sizes, and analysis methods we used to conduct the early impact analyses. In Appendix B, we provide additional detail on the results of the analyses that we discussed in the early impact report. In Appendix C, we present the results of sensitivity checks to assess the robustness of the early impact findings to alternative modeling choices.

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Appendix A

Data, Samples, Outcomes, and Methods

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This appendix provides information about the sources of data, samples, and outcome measures we used in the early impact analyses. Section A describes each data source, including the time periods covered by the data; it also describes the approaches we used to address missing data. Section B provides the sample sizes by data source and explains why the samples from some sources were smaller than the full research sample. Section C describes how we constructed each outcome measure examined in the impact analysis, and section D describes the methods we use for the analysis.

A. Data

In this section, we describe the survey and administrative data used for the analysis. RETAIN states generated some of the data analyzed; other data was collected by Mathematica.

1. Data sources

a. Early follow-up survey of enrollees

We conducted an early follow-up survey of enrollees a few months after enrollment. Mathematica designed the survey to capture information not available from other data sources. Enrollee survey topics included employment and earnings, training and services, and health and functioning.

We fielded the early follow-up survey from March 2022 to October 2024. We attempted to survey all enrollees in the five RETAIN programs. To simplify the survey management process, we aggregated enrollees into 32 cohorts corresponding to their month of enrollment. In each month from March 2022 to July 2024, we released a cohort to be surveyed.[1] Exhibit A.1 shows the start and end dates of survey fielding for each cohort and the RETAIN programs represented in each.

[1] Because few people enrolled in RETAIN during the first four months of the enrollment period, we launched one cohort in March 2022, corresponding to people who enrolled in RETAIN between October 2021 and January 2022.

Exhibit A.1. Schedule for the early follow-up survey

Cohort	Month enrolled	Fielding start month	Fielding end month	Number of enrollees included in each cohort				
				Kansas	Kentucky	Minnesota	Ohio	Vermont
1	10/21	3/22	6/22	5	11			
2	11/21	3/22	6/22	5	14			
3	12/21	3/22	6/22	2	12	1		
4	1/22	3/22	6/22	1	24	45	9	
5	2/22	4/22	7/22	6	14	44	89	
6	3/22	5/22	8/22	3	22	46	111	2
7	4/22	6/22	9/22	3	18	38	133	14
8	5/22	7/22	10/22	7	40	52	139	7
9	6/22	8/22	11/22	7	45	57	131	14
10	7/22	9/22	12/22	7	26	68	99	12
11	8/22	10/22	1/23	15	39	59	144	14
12	9/22	11/22	2/23	9	37	51	141	20
13	10/22	12/22	3/23	16	25	47	172	13
14	11/22	1/23	4/23	17	30	86	238	16
15	12/22	2/23	5/23	18	51	107	178	7
16	1/23	3/23	6/23	22	51	109	140	9
17	2/23	4/23	7/23	19	64	79	164	5
18	3/23	5/23	8/23	31	135	130	155	9
19	4/23	6/23	9/23	48	130	129	153	11
20	5/23	7/23	10/23	51	159	128	155	19
21	6/23	8/23	11/23	36	131	111	168	28
22	7/23	9/23	12/23	34	156	135	143	39
23	8/23	10/23	1/24	51	147	210	187	40
24	9/23	11/23	2/24	35	197	197	177	47
25	10/23	12/23	3/24	59	190	191	214	46
26	11/23	1/24	4/24	57	167	197	223	65
27	12/23	2/24	5/24	86	163	157	198	21
28	1/24	3/24	6/24	81	201	185	186	68
29	2/24	4/24	7/24	54	202	185	195	50
30	3/24	5/24	8/24	73	196	276	187	66
31	4/24	6/24	9/24	66	285	79	192	94
32	5/24	7/24	9/24	39	171		104	62
Total	-	-	-	**963**	**3,153**	**3,199**	**4,525**	**798**

We administered the surveys in English and Spanish in three modes: web, paper, and over the telephone with a professional interviewer. The interviewer-administered interviews used the same instruments and were deployed via computer-assisted interviewing technology. We offered enrollees an incentive of $30 for completing the early follow-up survey, with $5 pre-paid to encourage survey completion and the remaining $25 paid after completing the survey. Approximately 62 percent of respondents completed the survey by web, 37 percent by phone, and 1 percent by paper. Less than 1 percent completed the survey in Spanish. We considered a survey to be complete if the respondent provided information about their employment status and work hours and earnings (if employed).

Although we attempted to survey all enrollees for all RETAIN programs, some enrollees did not provide survey responses because they could not be located, were located but refused to be interviewed, or did not participate in the survey for other reasons. As shown in Exhibit A.2, the survey response rates were high (more than 80 percent for each program), and the differences in response rates between treatment and control sample members were small (less than 3.9 percentage points for any program).

Exhibit A.2. Early follow-up survey response rates, by program

Random assignment group	RETAIN-WOR*KS*	RETAIN Kentucky	Minnesota RETAIN	Ohio RETAIN	Vermont RETAIN	All programs
Treatment (percentage)	87.4	80.4	85.0	84.8	84.4	83.9
Control (percentage)	85.9	82.8	81.1	83.3	85.1	82.9
Eligible sample	962	3,147	3,190	4,521	798	12,618

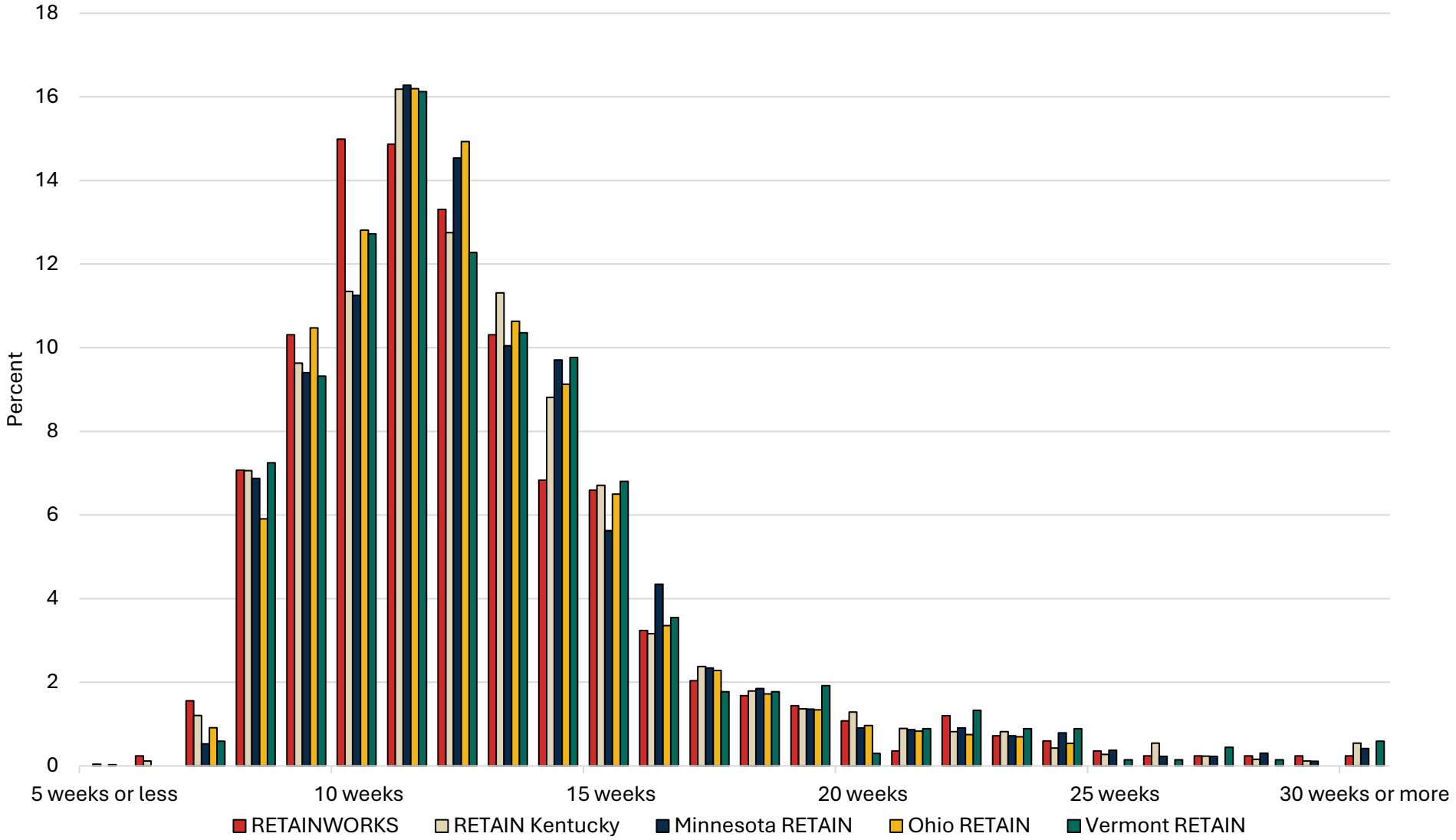
Source: RETAIN enrollment data and early follow-up survey.

Note: The eligible sample comprises all enrollees who were randomly assigned except enrollees who were enrolled in error (n = 6), experienced contamination (n = 5), chose to withdraw from the evaluation (n = 1), chose to withdraw from the survey but remain in the evaluation (n = 2), or died (n = 18). It excludes wildcard enrollees who did not undergo random assignment (n = 3).

The median time between enrollment and completion of the survey was 11 to 12 weeks for all programs. By 20 weeks after enrollment, nearly 95 percent of the sample had completed the survey in all programs. A few respondents completed the survey as early as five weeks after enrollment and as late as 30 weeks or more after enrollment (Exhibit A.3).[2]

[2] For survey administration, we collapsed enrollees into cohorts based on their month of enrollment. Because of this approach, someone who enrolled at the end of a month would become eligible for the survey earlier than someone who enrolled at the beginning of that same month. Such differences in the timing of becoming eligible for the survey could have contributed to variation in survey response times.

Exhibit A.3. Distribution of time between enrollment and survey completion, by program



Source: RETAIN enrollment data and early follow-up survey.

Notes: The figure shows the share of the respondents in each program who completed the early follow-up survey, by week after enrollment.

b. RETAIN enrollment data

Every RETAIN program collected information about the characteristics of enrollees at the time of their enrollment in the study through a Participant Enrollment Information Form that DOL developed. The form comprised two parts.

Part 1 of the enrollment form collected contact and demographic information, along with information on health, qualifying injury or illness, recent employment, past application for SSA disability benefits, health insurance coverage, and receipt of various types of unearned income. The data also contained personal identifiers that we used to link these records with the survey data. States provided the evaluation team with Part 1 data through different processes. The four states using individual random assignment submitted the data through Mathematica's random assignment system at enrollment, whereas the state using clustered random assignment (Vermont) submitted the data to Mathematica in monthly batches. States also included a few corrections and updates to Part 1 data in quarterly data submissions from their management information system.[3]

Part 2 of the enrollment form collected details about the qualifying injury or illness and recent employment. States provided Mathematica with Part 2 data in their quarterly data submissions.

c. State unemployment insurance wage records

We used state administrative unemployment insurance (UI) wage records as a source for baseline information about earnings in the quarter before enrollment in RETAIN. Four of five RETAIN programs provided us with the individual-level quarterly UI wage records needed to conduct the early impact analyses. The exception was Kansas, which did not provide the evaluation team with wage data for the quarter before enrollment.

State UI wage records provided the evaluation team with valuable information about enrollees' employment before joining the RETAIN programs. We used the baseline measures of earnings in the quarter before enrollment as a proxy for enrollees' employment quality before their injury or illness, which was important to control for in the impact estimation because earnings and employment quality before injury might be correlated with SAW/RTW outcomes after enrollment in RETAIN. However, state UI wage records have limitations because they exclude out-of-state employment and typically exclude records for self-employed individuals, independent contractors, federal employees, agricultural workers, and workers in the informal or gig economy. UI records also might exclude people who earn below a minimum threshold or work in industries not covered by UI laws.

2. Approaches for addressing missing data

For a variety of reasons, data were missing for some enrollees. Survey data were not available for some sample members because of survey and item nonresponse. More rarely, enrollment data were missing because of skipped responses in the enrollment form. Below we describe the approaches we used to address missing data on baseline characteristics and survey outcomes.

[3] For enrollee characteristics that were used to stratify random assignment, we used the data that states submitted at the time of random assignment rather than quarterly data submissions. This ensured that our impact analysis models accurately adjusted for the stratified random assignment design.

a. Missing enrollment data due to nonresponse or unavailability

Most baseline characteristics of enrollees came from RETAIN enrollment data, which had low levels of missingness. For the baseline characteristics we used in the analyses, only a small fraction of observations had missing data, which we replaced with imputed values to avoid excluding observations with missing data from the analyses. For continuous and binary baseline measures with missing data, we replaced the missing values with the program-specific mean values for the observations for which data were not missing. For categorical baseline measures, we added a category to indicate missing data.

b. Missing data due to survey nonresponse

To address data that were missing due to survey nonresponse, we first assessed the extent to which this nonresponse might affect the composition of our analysis sample and then constructed and used weights to adjust for nonresponse. We describe these approaches below.

As with any survey with less than a 100 percent response rate, there is the potential for survey respondents to differ systematically from nonrespondents. Among survey respondents, if the baseline characteristics of treatment and control groups were not equivalent, survey nonresponse could introduce bias in the impact estimates. In addition, numerous and large differences in the baseline characteristics of survey respondents and nonrespondents would mean that any impacts estimated using survey data might not be generalizable to all enrollees.

We assessed the extent to which survey nonresponse might limit generalizability of the early impact findings by examining data on baseline characteristics. In Exhibits A.4–A.8, we present baseline characteristics of all enrollees, survey respondents, and survey nonrespondents, separately by program. We compared the baseline characteristics between survey respondents and nonrespondents, and checked whether the differences were statistically significant.

Across all states, respondents were on average older and more likely to be female. In three programs (RETAIN KY, MN RETAIN, and OH RETAIN), respondents had higher earnings in the quarter before enrollment than nonrespondents. In all programs except RETAINWOR*KS*, enrollee education levels and pre-injury or pre-illness occupations also differed between respondents and nonrespondents. Other differences varied by program. Overall, the differences between the two groups were small even when statistically significant, which suggests that the respondents were not markedly different from the nonrespondents. Nevertheless, to adjust for these differences, we calculated and used survey weights (separately by program) in all regression models.

To construct survey weights, we used baseline characteristics and the random assignment group of enrollees in a random forest model to predict survey response (Breiman 2001; Pedregosa et al. 2011). In exploratory analyses, we found that the random forest model outperformed logistic regression in predicting survey response in each state. The baseline characteristics we included in the random forest model were identical to the core covariates and stratification factors we used in the impact regression models.

To balance the complexity of the random forest model against the risk of overfitting to the baseline sample, we used a grid search algorithm to tune two of the model's hyperparameters: the maximum

depth of the trees and the minimum samples at each leaf node (Jamieson and Talwalkar 2016; Li et al. 2018). We used a k-fold cross-validation strategy on the baseline sample to select the model hyperparameters that produced the smallest average cross-entropy loss score. We used a 10-fold random split of the baseline sample, stratified by participant survey completion status, for our cross-validation sample (Burman 1989, 1990).[4] We searched over a wide range of hyperparameters and picked the values that maximize the score in the left-out fold. We used the sum of the cross-entropy loss per prediction as our scoring method for picking the best hyperparameters.[5]

For each state, we estimated the random forest model using the chosen hyperparameters and then assigned each person a probability, representing their likelihood of responding to the survey. We then created the nonresponse weights by taking the inverse of the response probability and normalizing so that the sum of weights equaled the total number of enrollees.

In Exhibits A.4–A.8, we report the baseline characteristics of all enrollees in the weighted respondent sample (that is, to the sample of respondents after applying the nonresponse weights). To understand the extent to which the nonresponse weights accounted for the differences between respondents and nonrespondents, we compared the characteristics of the weighted respondent sample to the nonrespondent sample. The findings confirm that, once weights are applied, the differences between respondents and nonrespondents disappear or diminish significantly.

[4] The maximum depth of the tree controls how much we allow the tree to grow; a maximum depth that is too high could lead to decision trees that fit the training data well but do poorly out of sample because they overfit the data. Conversely, one that is too low will not allow the random forest model to learn enough about the relationship between the covariates and the outcome (that is, responding to the survey) and thus lead to poor predictions. The minimum samples at each leaf node also controls the depth and complexity of the tree. It requires that the number of people at each leaf node (the end nodes of the tree) be larger than a specific number. A split point at any depth will be considered only if it results in at least the specified minimum number of people in the resultant two groups. We selected the best hyperparameters using cross-validation—a statistical technique used in machine learning to assess how well a model will generalize to an independent data set. The data set is split into multiple subsets or "folds"; the model is trained on all of the folds, leaving one out (for example, nine out of 10 folds for 10-fold cross-validation) and the remaining fold (the left-out fold) is used as a test set to evaluate the model's performance. This process is repeated multiple times, with each fold being used as the test set once.

[5] The cross-entropy loss score is equivalent to the negative logarithm of the likelihood that the predicted outcome matches the actual outcome; the smaller the score, the better the model performance. The cross-entropy loss provides a single value by which we can assess the model's performance, is symmetric with respect to penalizing false positives and false negatives and strongly penalizes predicted values that deviate greatly from actual outcomes.

Exhibit A.4. RETAINWOR*KS*: Baseline characteristics of all enrollees, survey respondents, and survey nonrespondents (percentage unless otherwise noted)

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Demographic characteristics					
Sex					
Female	61.5	62.9	52.5	10.4**	1.0
Age				†††	
18–29	16.5	14.9	27.2	-12.3	-0.9
30–39	22.9	21.9	29.8	-7.9	-0.9
40–44	13.5	14.2	9.0	5.2	0.4
45–49	13.3	14.1	8.0	6.1	0.6
50–54	12.5	12.8	10.4	2.4	0.2
55–59	11.1	11.3	9.9	1.4	0.1
60 and older	10.2	10.9	5.7	5.1	0.5
Average (years)	43.1	43.7	38.8	4.9***	0.4
Race and ethnicity					
Hispanic	9.2	9.8	5.9	3.8	0.4
White, non-Hispanic	71.9	71.9	71.5	0.4	-0.2
Black, non-Hispanic	12.6	11.9	16.8	-4.9	-0.2
Asian, non-Hispanic	s	s	s	s	s
More than one race	3.2	3.4	2.3	1.0	0.1
Other, non-Hispanic	s	s	s	s	0.1
Missing	s	s	s	s	s
Preferred language				†††	
English	99.3	99.2	99.9	-0.8	-0.1
Spanish	0.7	0.8	0.1	0.8	0.1
Other	0.0	0.0	0.0	0.0	0.0
Education					
Less than a high school diploma	5.1	4.9	6.3	-1.4	-0.2
High school diploma, GED, or certificate of completion	46.0	45.1	52.0	-6.9	-0.8
Occupational certificate, license, or two-year college degree	29.4	29.5	28.6	1.0	0.1
Four-year college or postgraduate degree	19.5	20.5	13.2	7.4	0.9
Injury or illness characteristics					
Type of illness					
Musculoskeletal, back	17.1	17.4	15.5	1.9	0.2

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Musculoskeletal, non-back	49.2	50.0	44.4	5.6	0.3
Mental	7.6	6.7	13.0	-6.2	-0.6
Other	26.1	25.9	27.2	-1.3	0.1
Missing	0.0	0.0	0.0	0.0	0.0
New injury or illness	46.9	47.0	46.5	0.5	-0.1
Injury or result of an accident	47.9	48.1	46.1	2.1	0.0
Work-related injury or illness	29.4	29.9	25.8	4.1	0.5
Injury or illness as part of a workers' compensation claim	17.9	17.9	17.4	0.6	0.0
Time between injury or illness and enrollment					
Total days	62	64	49	15*	2
Enrolled before onset of injury or illness	s	s	s	s	s
Missing	0.0	0.0	0.0	0.0	0.0
Recent work history					
Employment status at enrollment					
Not employed	19.2	19.0	20.5	-1.5	0.1
Self-employed	4.3	3.7	7.7	-3.9	-0.3
Employed	76.5	77.3	71.8	5.4	0.3
Time since last worked at enrollment					
Working at enrollment	35.8	36.4	31.9	4.5	0.3
Last worked less than one week before	16.2	16.1	17.0	-1.0	-0.1
Last worked one to four weeks before	17.0	16.4	21.2	-4.8	-0.4
Last worked one to three months before	15.3	15.7	12.7	3.0	0.2
Last worked more than three months before	15.7	15.5	17.2	-1.7	0.0
Hours per week usually worked before injury or illness	40.4	40.3	41.0	-0.7	-0.1
Tenure at most recent job					
Fewer than six months	22.8	22.0	28.1	-6.1	-0.8
Six months to one year	12.8	12.3	15.6	-3.3	-0.5
One to two years	18.1	18.9	12.7	6.2	0.8
Two to five years	19.3	19.7	16.8	2.9	0.4
More than five years	27.0	27.0	26.8	0.2	0.0

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Occupational classification of pre-injury or pre-illness job					
Management, professional, or related	28.3	29.6	20.6	9.0	1.1
Service	35.2	34.1	42.1	-8.0	-0.9
Sales and office	9.2	9.2	9.7	-0.5	-0.1
Natural resources, construction, or maintenance	8.0	7.7	10.0	-2.4	-0.4
Production, transportation, or material moving	19.2	19.5	17.6	1.8	0.2
Missing	0.0	0.0	0.0	0.0	0.0
Economic well-being					
Earnings in the quarter before the enrollment quarter ($)	n.a.	n.a.	n.a.	n.a.	n.a.
Earned $1,000 or more in one of the past 12 months	80.0	80.0	79.5	0.6	0.0
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	2.0	1.7	3.8	-2.1	-0.3
Workers' compensation	5.3	5.4	4.8	0.6	0.1
Employer-provided or other private disability insurance	7.6	7.6	7.2	0.5	0.1
Other public programs	2.9	2.9	3.1	-0.2	0.0
Applied for or received SSDI or SSI in the past three years	5.2	5.3	4.7	0.6	0.1
Covered by health insurance	86.6	87.1	83.2	4.0	0.5
Total number of enrollees	**963**	**834**	**129**		

Source: RETAIN enrollment data and early follow-up survey.

Note: In column D we compared the baseline characteristics of respondents (column B) to enrollees who did not respond to the survey (column C). In column E we compared the baseline characteristics of all enrollees (column A) to survey respondents after applying the weights (not shown). For continuous or binary variables, we conducted a two-tailed *t*-test and for multinomial categorical variables, we conducted an *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.5. RETAIN Kentucky: Baseline characteristics of all enrollees, survey respondents, and survey nonrespondents (percentage unless otherwise noted)

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Demographic characteristics					
Sex					
Female	61.1	63.5	50.5	13.0***	1.1
Age				†††	
18–29	18.1	16.9	23.4	-6.5	-0.7
30–39	27.2	27.0	27.8	-0.8	0.2
40–44	14.3	14.1	15.1	-1.0	0.0
45–49	12.3	12.1	13.2	-1.2	-0.1
50–54	11.6	12.1	9.5	2.6	0.2
55–59	8.5	9.0	6.6	2.4	0.1
60 and older	8.0	8.9	4.4	4.5	0.4
Average (years)	41.7	42.2	39.3	2.9***	0.3
Race and ethnicity					
Hispanic	s	s	s	s	-0.1
White, non-Hispanic	74.2	74.5	73.1	1.4	0.0
Black, non-Hispanic	16.1	16.1	16.1	0.0	0.1
Asian, non-Hispanic	s	s	s	s	0.1
More than one race	5.1	4.9	5.9	-1.0	-0.1
Other, non-Hispanic	0.3	0.3	0.5	-0.2	0.0
Missing	0.5	0.4	0.7	-0.3	-0.1
Preferred language				†††	
English	99.2	99.2	99.4	-0.2	0.0
Spanish	0.2	0.3	0.0	0.2	0.0
Other	0.6	0.6	0.6	-0.1	0.0
Education				†††	
Less than a high school diploma	6.7	6.0	9.8	-3.8	-0.6
High school diploma, GED, or certificate of completion	48.0	47.0	52.5	-5.4	-0.7
Occupational certificate, license, or two-year college degree	22.0	22.2	21.4	0.8	0.1
Four-year college or postgraduate degree	23.3	24.8	16.4	8.4	1.2

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Injury or illness characteristics					
Type of illness				†††	
Musculoskeletal, back	s	s	s	s	0.1
Musculoskeletal, non-back	16.6	17.2	13.7	3.5	0.3
Mental	33.0	30.2	45.1	-15.0	-0.6
Other	40.9	42.4	34.3	8.1	0.2
Missing	s	s	s	s	0.0
New injury or illness	18.3	18.3	18.4	-0.1	-0.4
Injury or result of an accident	19.1	20.2	14.3	6.0***	0.6
Work-related injury or illness	5.8	5.9	5.2	0.7	0.3
Injury or illness as part of a workers' compensation claim	1.1	1.0	1.8	-0.8	-0.2
Time between injury or illness and enrollment					
Total days	266	264	273	-9	-1
Enrolled before onset of injury or illness	0.0	0.0	0.0	0.0	0.0
Missing	0.0	0.0	0.0	0.0	0.0
Recent work history					
Employment status at enrollment				†††	
Not employed	34.8	33.3	41.5	-8.3	-0.1
Self-employed	4.6	4.4	5.1	-0.7	-0.2
Employed	60.6	62.3	53.4	8.9	0.3
Time since last worked at enrollment				†††	
Working at enrollment	27.5	29.8	17.6	12.1	0.6
Last worked less than one week before	20.5	20.1	22.2	-2.2	-0.3
Last worked one to four weeks before	14.5	14.6	13.8	0.8	0.2
Last worked one to three months before	18.1	17.1	22.6	-5.6	-0.6
Last worked more than three months before	19.4	18.5	23.7	-5.2	0.1
Hours per week usually worked before injury or illness	37.1	37.0	37.3	-0.3	-0.1
Tenure at most recent job					
Fewer than six months	33.2	32.1	37.7	-5.5	-0.4
Six months to one year	15.6	15.7	15.5	0.2	0.0
One to two years	13.4	13.6	12.4	1.2	0.1
Two to five years	16.9	17.3	15.1	2.1	0.3
More than five years	20.9	21.3	19.3	2.0	0.0

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Occupational classification of pre-injury or pre-illness job				†††	
Management, professional, or related	27.4	28.5	22.6	5.9	0.7
Service	39.9	39.3	42.5	-3.2	-0.3
Sales and office	8.5	9.2	5.5	3.6	0.7
Natural resources, construction, or maintenance	6.5	5.7	10.0	-4.3	-0.8
Production, transportation, or material moving	17.7	17.4	19.4	-2.0	-0.3
Missing	0.0	0.0	0.0	0.0	0.0
Economic well-being					
Earnings in the quarter before the enrollment quarter ($)	5,957	6,068	5,469	600**	-25
Earned $1,000 or more in one of the past 12 months	81.0	81.5	78.9	2.6	0.0
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.8	0.8	0.9	-0.1	0.0
Veterans benefits	1.5	1.4	1.9	-0.5	-0.1
Workers' compensation	s	s	s	s	0.0
Employer-provided or other private disability insurance	5.0	4.7	6.3	-1.6	-0.3
Other public programs	11.4	10.7	14.8	-4.1**	-0.2
Applied for or received SSDI or SSI in the past three years	2.4	2.6	1.9	0.7	0.1
Covered by health insurance	93.0	93.1	92.4	0.7	0.2
Total number of enrollees	**3,153**	**2,567**	**586**		

Source: RETAIN enrollment data and early follow-up survey.

Note: In column D we compared the baseline characteristics of respondents (column B) to enrollees who did not respond to the survey (column C). In column E we compared the baseline characteristics of all enrollees (column A) to survey respondents after applying the weights (not shown). For continuous or binary variables, we conducted a two-tailed *t*-test and for multinomial categorical variables, we conducted an *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.6. Minnesota RETAIN: Baseline characteristics of all enrollees, survey respondents, and survey nonrespondents (percentage unless otherwise noted)

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Demographic characteristics					
Sex					
Female	55.1	56.7	47.2	9.5***	0.9
Age				†††	
18–29	17.5	15.6	26.8	-11.2	-0.3
30–39	24.1	22.9	29.7	-6.7	-0.6
40–44	13.2	13.6	10.9	2.8	0.1
45–49	12.6	12.6	12.8	-0.3	-0.3
50–54	12.8	13.4	10.0	3.4	0.3
55–59	11.0	12.0	5.8	6.2	0.4
60 and older	8.8	9.8	4.0	5.8	0.3
Average (years)	42.5	43.4	38.2	5.2***	0.3
Race and ethnicity					
Hispanic	7.6	7.3	9.0	-1.8	-0.1
White, non-Hispanic	74.3	75.4	69.2	6.1	0.2
Black, non-Hispanic	9.8	9.6	10.7	-1.2	0.1
Asian, non-Hispanic	1.8	1.7	1.8	0.0	0.0
More than one race	3.9	3.6	5.1	-1.5	0.0
Other, non-Hispanic	1.8	1.6	2.9	-1.3	-0.1
Missing	0.9	0.9	1.2	-0.4	0.0
Preferred language					
English	97.5	97.6	96.8	0.8	0.1
Spanish	1.1	1.0	1.3	-0.3	0.0
Other	1.4	1.4	1.9	-0.5	-0.1
Education				†††	
Less than a high school diploma	3.8	3.2	6.6	-3.3	-0.5
High school diploma, GED, or certificate of completion	37.6	36.7	42.2	-5.5	-0.7
Occupational certificate, license, or two-year college degree	25.8	26.0	25.1	0.9	0.1
Four-year college or postgraduate degree	32.7	34.1	26.1	8.0	1.1

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Injury or illness characteristics					
Type of illness				++	
Musculoskeletal, back	10.4	10.8	8.6	2.1	0.3
Musculoskeletal, non-back	49.7	49.5	50.7	-1.2	-0.3
Mental	14.2	13.5	17.6	-4.1	-0.1
Other	25.7	26.2	23.1	3.1	0.1
Missing	0.0	0.0	0.0	0.0	0.0
New injury or illness	44.6	44.2	46.6	-2.4	-0.7
Injury or result of an accident	39.5	39.5	39.4	0.1	-0.1
Work-related injury or illness	14.1	14.3	13.1	1.2	0.3
Injury or illness as part of a workers' compensation claim	5.2	5.3	4.9	0.4	0.1
Time between injury or illness and enrollment					
Total days	48	49	46	3	1
Enrolled before onset of injury or illness	7.3	7.6	5.5	2.2**	0.3
Missing	0.0	0.0	0.0	0.0	0.0
Recent work history					
Employment status at enrollment				++	
Not employed	15.2	14.5	18.7	-4.3	0.0
Self-employed	8.1	8.0	8.6	-0.7	0.0
Employed	76.7	77.6	72.6	5.0	0.0
Time since last worked at enrollment				++	
Working at enrollment	26.9	27.6	23.1	4.5	0.3
Last worked less than one week before	14.2	14.1	14.6	-0.5	-0.1
Last worked one to four weeks before	25.2	25.1	25.6	-0.5	-0.2
Last worked one to three months before	23.1	23.3	22.0	1.2	0.3
Last worked more than three months before	10.7	9.9	14.7	-4.8	-0.3
Hours per week usually worked before injury or illness	37.9	38.0	37.8	0.2	0.0
Tenure at most recent job					
Fewer than six months	20.9	20.3	23.6	-3.3	-0.4
Six months to one year	13.7	13.7	14.1	-0.4	0.0
One to two years	14.9	14.6	16.4	-1.9	-0.3

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Two to five years	18.2	18.6	16.5	2.1	0.3
More than five years	32.3	32.9	29.4	3.5	0.3
Occupational classification of pre-injury or pre-illness job				††	
Management, professional, or related	36.7	37.4	33.5	3.9	0.4
Service	31.9	31.8	32.1	-0.2	0.1
Sales and office	7.8	8.2	6.4	1.8	0.4
Natural resources, construction, or maintenance	9.3	8.8	11.7	-2.8	-0.5
Production, transportation, or material moving	14.3	13.8	16.4	-2.6	-0.4
Missing	0.0	0.0	0.0	0.0	0.0
Economic well-being					
Earnings in the quarter before the enrollment quarter ($)	10,026	10,146	9,449	697*	3
Earned $1,000 or more in one of the past 12 months	80.9	81.3	78.6	2.8	0.2
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	1.0	0.9	1.5	-0.6	-0.1
Workers' compensation	1.0	1.1	0.7	0.4	0.1
Employer-provided or other private disability insurance	2.4	2.5	2.4	0.1	0.0
Other public programs	12.2	12.4	11.4	1.0	0.4
Applied for or received SSDI or SSI in the past three years	1.1	0.8	2.2	-1.3**	-0.2
Covered by health insurance	96.0	96.2	94.6	1.6	0.3
Total number of enrollees	**3,199**	**2,649**	**550**		

Source: RETAIN enrollment data and early follow-up survey.

Note: In column D we compared the baseline characteristics of respondents (column B) to enrollees who did not respond to the survey (column C). In column E we compared the baseline characteristics of all enrollees (column A) to survey respondents after applying the weights (not shown). For continuous or binary variables, we conducted a two-tailed *t*-test and for multinomial categorical variables, we conducted an *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.7. Ohio RETAIN: Baseline characteristics of all enrollees, survey respondents, and survey nonrespondents (percentage unless otherwise noted)

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Demographic characteristics					
Sex					
Female	62.0	63.6	53.6	9.9***	0.9
Age				†††	
18–29	14.2	12.2	24.8	-12.6	-0.5
30–39	20.2	18.8	27.2	-8.4	-0.6
40–44	12.5	12.2	14.5	-2.3	-0.2
45–49	13.0	13.3	11.2	2.1	0.1
50–54	15.0	15.7	11.1	4.6	0.3
55–59	14.4	15.9	6.8	9.1	0.5
60 and older	10.7	11.9	4.3	7.6	0.4
Average (years)	44.5	45.5	39.3	6.2***	0.3
Race and ethnicity				††	
Hispanic	4.2	4.0	5.5	-1.5	-0.1
White, non-Hispanic	76.3	77.3	70.9	6.5	0.4
Black, non-Hispanic	17.1	16.3	20.9	-4.6	-0.3
Asian, non-Hispanic	0.5	0.5	0.6	-0.1	0.0
More than one race	1.5	1.5	1.6	-0.1	0.0
Other, non-Hispanic	s	s	s	s	s
Missing	s	s	s	s	s
Preferred language					
English	99.6	99.6	99.7	-0.2	0.0
Spanish	s	s	s	s	s
Other	s	s	s	s	s
Education				†††	
Less than a high school diploma	4.1	3.9	5.2	-1.3	-0.2
High school diploma, GED, or certificate of completion	38.7	37.7	44.0	-6.3	-0.9
Occupational certificate, license, or two-year college degree	32.8	32.1	36.3	-4.2	-0.6
Four-year college or postgraduate degree	24.4	26.3	14.5	11.8	1.6

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Injury or illness characteristics					
Type of illness					
Musculoskeletal, back	9.4	9.6	7.9	1.7	0.1
Musculoskeletal, non-back	71.2	70.9	73.1	-2.2	-0.1
Mental	1.2	1.1	1.7	-0.6	-0.1
Other	18.2	18.4	17.4	1.0	0.0
Missing	0.0	0.0	0.0	0.0	0.0
New injury or illness	47.9	47.2	51.8	-4.6**	-0.6
Injury or result of an accident	58.5	58.1	60.3	-2.3	-0.3
Work-related injury or illness	3.9	3.9	4.1	-0.2	0.0
Injury or illness as part of a workers' compensation claim	0.0	0.0	0.0	0.0	0.0
Time between injury or illness and enrollment					
Total days	21	21	19	2***	0
Enrolled before onset of injury or illness	0.1	0.0	0.4	-0.4*	-0.1*
Missing	0.0	0.0	0.0	0.0	0.0
Recent work history					
Employment status at enrollment					
Not employed	12.2	11.9	13.8	-1.9	0.0
Self-employed	2.7	2.7	2.7	0.0	0.0
Employed	85.1	85.4	83.5	1.9	0.0
Time since last worked at enrollment				†††	
Working at enrollment	27.5	28.4	22.5	5.9	0.4
Last worked less than one week before	16.6	16.9	14.9	1.9	0.2
Last worked one to four weeks before	35.0	34.1	39.5	-5.3	-0.5
Last worked one to three months before	10.9	10.6	12.6	-1.9	-0.1
Last worked more than three months before	10.0	9.9	10.5	-0.6	0.0
Hours per week usually worked before injury or illness	38.8	38.6	39.5	-0.8*	-0.2
Tenure at most recent job					
Fewer than six months	15.7	15.7	15.4	0.3	0.2
Six months to one year	11.6	11.3	13.6	-2.3	-0.3
One to two years	13.3	13.5	12.2	1.3	0.2

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Two to five years	18.2	18.0	19.2	-1.2	-0.2
More than five years	41.2	41.5	39.6	1.9	0.1
Occupational classification of pre-injury or pre-illness job				†††	
Management, professional, or related	28.6	29.7	23.3	6.3	0.9
Service	39.1	38.8	40.6	-1.8	-0.2
Sales and office	8.8	8.8	8.8	0.0	0.0
Natural resources, construction, or maintenance	5.4	5.1	6.6	-1.4	-0.2
Production, transportation, or material moving	18.1	17.6	20.7	-3.1	-0.4
Missing	0.0	0.0	0.0	0.0	0.0
Economic well-being					
Earnings in the quarter before the enrollment quarter ($)	10,203	10,394	9,202	1,192***	66
Earned $1,000 or more in one of the past 12 months	82.3	82.3	82.0	0.3	0.0
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	0.0
Veterans benefits	0.9	0.9	0.8	0.1	0.0
Workers' compensation	s	s	s	s	s
Employer-provided or other private disability insurance	25.2	25.5	23.9	1.6	0.1
Other public programs	0.3	0.3	0.4	-0.1	0.0
Applied for or received SSDI or SSI in the past three years	0.8	0.9	0.5	0.4	0.1
Covered by health insurance	97.3	97.6	96.1	1.5*	0.2
Total number of enrollees	**4,525**	**3,800**	**725**		

Source: RETAIN enrollment data and early follow-up survey.

Note: In column D we compared the baseline characteristics of respondents (column B) to enrollees who did not respond to the survey (column C). In column E we compared the baseline characteristics of all enrollees (column A) to survey respondents after applying the weights (not shown). For continuous or binary variables, we conducted a two-tailed *t*-test and for multinomial categorical variables, we conducted an *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.8. Vermont RETAIN: Baseline characteristics of all enrollees, survey respondents, and survey nonrespondents (percentage unless otherwise noted)

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Demographic characteristics					
Sex					
Female	64.0	65.5	55.9	9.6**	1.1
Age				†††	
18–29	19.0	16.8	31.4	-14.6	-1.3
30–39	24.4	24.3	25.4	-1.1	-0.2
40–44	13.5	13.2	15.2	-2.0	-0.2
45–49	11.2	11.3	10.1	1.3	0.3
50–54	10.0	10.4	7.7	2.7	0.3
55–59	9.6	10.6	4.1	6.5	0.4
60 and older	12.2	13.3	6.1	7.2	0.6
Average (years)	42.7	43.6	37.9	5.6***	0.5***
Race and ethnicity					
Hispanic	3.5	3.2	5.0	-1.7	0.0
White, non-Hispanic	88.2	88.2	88.1	0.2	-0.2
Black, non-Hispanic	s	s	s	s	0.1
Asian, non-Hispanic	s	s	s	s	s
More than one race	s	s	s	s	0.3
Other, non-Hispanic	s	s	s	s	s
Missing	2.6	2.7	2.4	0.2	0.0
Preferred language					
English	99.7	99.9	99.1	0.7	0.1
Spanish	s	s	s	s	s
Other	s	s	s	s	s
Education				††	††
Less than a high school diploma	3.6	3.3	5.8	-2.5	-0.4
High school diploma, GED, or certificate of completion	33.5	31.3	45.5	-14.2	-1.8
Occupational certificate, license, or two-year college degree	17.8	18.1	16.0	2.1	0.2
Four-year college or postgraduate degree	45.1	47.3	32.8	14.6	2.1

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Injury or illness characteristics					
Type of illness					
Musculoskeletal, back	9.4	9.4	9.6	-0.3	-0.2
Musculoskeletal, non-back	21.9	23.0	16.0	7.0	0.9
Mental	41.5	41.4	42.0	-0.6	0.0
Other	24.8	24.3	27.4	-3.1	-0.3
Missing	2.4	1.9	5.0	-3.1	-0.3
New injury or illness	18.4	18.6	17.0	1.6	0.3
Injury or result of an accident	19.2	19.7	15.9	3.9	0.5
Work-related injury or illness	23.2	24.5	16.4	8.1**	1.0*
Injury or illness as part of a workers' compensation claim	5.7	6.3	2.7	3.6**	0.5*
Time between injury or illness and enrollment					
Total days	417	397	524	-126	-21
Enrolled before onset of injury or illness	s	s	s	s	0.0
Missing	1.9	1.5	4.2	-2.7	-0.3
Recent work history					
Employment status at enrollment					
Not employed	24.4	23.9	27.2	-3.3	0.0
Self-employed	10.3	11.1	5.7	5.4	0.4
Employed	65.3	65.0	67.1	-2.2	-0.4
Time since last worked at enrollment					
Working at enrollment	39.1	39.6	36.5	3.1	0.7
Last worked less than one week before	24.2	24.4	22.7	1.7	-0.4
Last worked one to four weeks before	10.5	10.1	13.0	-2.9	-0.4
Last worked one to three months before	11.9	11.8	12.7	-0.9	0.1
Last worked more than three months before	14.3	14.1	15.1	-0.9	0.0
Hours per week usually worked before injury or illness	38.4	38.4	38.6	-0.2	0.0
Tenure at most recent job				†††	††
Fewer than six months	26.7	24.5	38.6	-14.1	-1.8
Six months to one year	14.9	14.5	17.0	-2.5	-0.3
One to two years	16.3	16.4	15.8	0.6	0.1

Variable	All (A)	Respondents (B)	Non-respondents (C)	Difference between respondents and non-respondents (D)	Difference between all enrollees and weighted respondents (E)
Two to five years	17.0	18.0	11.7	6.3	0.9
More than five years	25.1	26.5	16.9	9.7	1.0
Occupational classification of pre-injury or pre-illness job				†††	††
Management, professional, or related	43.5	45.9	30.1	15.8	2.4
Service	29.4	27.3	41.1	-13.8	-2.1
Sales and office	9.5	10.1	6.4	3.7	0.6
Natural resources, construction, or maintenance	7.8	7.6	8.7	-1.1	-0.2
Production, transportation, or material moving	7.9	7.6	9.5	-1.9	-0.3
Missing	1.9	1.5	4.2	-2.7	-0.3
Economic well-being					
Earnings in the quarter before the enrollment quarter ($)	6,562	6,456	7,153	-698	-42
Earned $1,000 or more in one of the past 12 months	76.9	78.2	70.1	8.1	1.3
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.5	0.6	-0.1	0.7	0.1
Veterans benefits	s	s	s	s	0.1
Workers' compensation	s	s	s	s	0.1
Employer-provided or other private disability insurance	s	s	s	s	0.2
Other public programs	11.7	11.2	14.3	-3.1	-0.5
Applied for or received SSDI or SSI in the past three years	6.5	6.6	6.0	0.6	0.1
Covered by health insurance	96.1	96.2	95.9	0.2	0.1
Total number of enrollees	**798**	**676**	**122**		

Source: RETAIN enrollment data and early follow-up survey.

Note: In column D we compared the baseline characteristics of respondents (column B) to enrollees who did not respond to the survey (column C). In column E we compared the baseline characteristics of all enrollees (column A) to survey respondents after applying the weights (not shown). For continuous or binary variables, we conducted a two-tailed *t*-test and for multinomial categorical variables, we conducted an *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

c. Missing data due to survey item nonresponse

Sometimes survey respondents did not answer one or more questions on the survey, resulting in item-level nonresponse. These cases included respondents who refused to answer or did not know the answer to a question. When it was reasonable to assume that the outcomes data were missing at random, we excluded observations with missing data from the analyses of those outcomes.

For some outcome measures, data were missing nonrandomly—that is, data were missing conditional on certain values of other outcome measures. For example, some enrollees reported that they were working at the time of the survey but did not respond to the question about their average weekly earnings. Because this question was asked only of people who were working at the time of the survey, omitting observations with missing earnings data would lead to biased estimates of the impact of RETAIN on earnings. The bias would stem from nonrandom missing observations that compromise the use of random assignment to estimate effects.

To eliminate the risk of such bias when we analyzed outcomes for which information could be missing only conditional on another outcome, we used a multiple imputation procedure that allowed us to retain observations that had truly missing data on the outcome to be analyzed.[6] We used multivariate imputation by chained equations to impute outcomes with conditionally missing values (Raghunathan et al. 2001; Van Buuren 2007) and predictive mean matching (Little 1988; Rubin 1986). A key advantage of the multiple imputation approach is to account for imputation uncertainty; common single imputation methods, such as mean-replacement imputation or hot decking, do not account for this uncertainty. As a result, standard errors from data based on single imputation methods may be understated, thus affecting inferences drawn from the data.

We conducted the multiple imputation procedure separately for each program. First, we developed predicted values for the missing cases of each variable using a multivariate regression model and a random disturbance term. The covariates included the core covariates, stratification factors, and random assignment group. Then, using predictive mean matching, we matched each missing data point to the 10 non-missing cases with the closest predicted values. Next, we randomly selected one of the 10 matched cases to assign the value of that case to the missing data. We iterated this imputation procedure 10 times and created 10 imputed data sets. In other words, we estimated 10 replacement values for each missing case. After completing the imputation, we estimated impacts separately on each of the 10 imputed data sets. We then combined the impact estimates using the approach described in Rubin (1987), which accounts for the uncertainty created by imputing data and adjusts the standard error of impacts appropriately.

[6] We used multiple imputation for the following outcomes: (1) conditional on not connected to an employer: connected to an employer or looking for work; (2) conditional on not working at a job: not working but planning to return to work in the next 90 days; (3) conditional on working at a job: usual hours worked, average weekly pay, working for an employer offering health insurance, working for an employer offering paid leave, working and received advice about modifying job or workplace, and working and employer offering the chance to return to work with needed accommodations.

B. Samples size and composition

1. Sample size

For the RETAIN evaluation, we defined the research sample for each program as the enrollees assigned to either the treatment or control group through random assignment of either individuals or primary care practices, depending on the program (Exhibit A.9). For each program, all enrollees belonged to the research sample, except a small number who (1) were enrolled in error, (2) experienced contamination, (3) chose to withdraw from the evaluation, or (4) were wildcard enrollees who did not undergo random assignment.[7]

Only research sample members were eligible for the early follow-up survey that provided crucial outcomes data for the early impact analysis. However, some enrollees in the research sample did not complete the survey. Therefore, for each program, the analysis sample for the early impact study comprises the subset of the research sample who responded to the early follow-up survey (Exhibit A.9)—that is, early follow-up survey respondents.

Exhibit A.9. RETAIN sample sizes, by program

Random assignment group	RETAINWOR*KS*	RETAIN Kentucky	Minnesota RETAIN	Ohio RETAIN	Vermont RETAIN
Research sample (all enrollees)					
Treatment	509	1,654	1,598	2,264	450
Control	454	1,499	1,601	2,261	348
Total	963	3,153	3,199	4,525	798
Analysis sample (early follow-up survey respondents)					
Treatment	445	1,327	1,356	1,918	380
Control	389	1,240	1,293	1,882	296
Total	834	2,567	2,649	3,800	676

Source: RETAIN enrollment data and early follow-up survey.

Note: The research sample comprises all enrollees who were randomly assigned except enrollees who were enrolled in error (n = 6), experienced contamination (n = 5), or chose to withdraw from the evaluation (n = 1). It excludes wildcard enrollees who did not undergo random assignment (n = 3). The analysis sample comprises research sample members who responded to the early follow-up survey. Enrollees who were not in the research sample were not eligible for the survey.

2. Baseline characteristics

We expected enrollees in the treatment and control groups of each RETAIN program to be similar in their initial characteristics because of the experimental study design we used to construct the groups. Random assignment, when implemented correctly, should result in research groups that are, on average, similar in their characteristics at the time of enrollment. For each program, we checked that random assignment worked as expected by comparing the baseline characteristics of treatment and control group members in the research sample (all enrollees) and analysis sample (early follow-up survey respondents).

[7] In September 2023, DOL granted the OH RETAIN program permission to bypass random assignment for up to three enrollees (wildcards) per month with behavioral health conditions. We automatically assigned these wildcard enrollees to the treatment group of the OH RETAIN program. We excluded these cases from the evaluation because they were not randomly assigned.

In Exhibits A.10–A.17, we present the results of baseline balance tests for the four programs that used individual random assignment designs: RETAINWOR*KS*, RETAIN KY, MN RETAIN, and OH RETAIN. The results of the tests indicate that random assignment worked as intended in each RETAIN program. For each program, we found only a small number of differences in baseline characteristics among all enrollees and among early follow-up survey respondents. For each program and sample, though some individual characteristics may have shown statistically significant differences, they were likely to be due to chance. With a significance level of 10 percent, we expect to reject the null hypothesis that the groups were equivalent for one out of every 10 characteristics by chance alone, even when the two groups in fact had no underlying differences. Therefore, we consider significant differences for three or fewer characteristics out of the 29 as not concerning. Furthermore, as we describe in Section D, we included characteristics that were significantly different at baseline as covariates in the regression-adjusted impact analyses to control for the observed differences.

Exhibits A.18 and A.19 present the results of baseline balance tests for VT RETAIN, the program that used clustered random assignment design. Notably, the sizes of the treatment and control group are uneven. Although we stratified random assignment of primary care practices based on their approximate size, practices might have varied in the number of potentially eligible patients they received or the extent to which they supported recruitment, which could have contributed to differences in the sizes of treatment and control groups. Similar to the other programs, VT RETAIN's treatment and control groups were similar in baseline characteristics. We observed three statistically differences in enrollee characteristics—a slightly larger number than we did in the other programs. This pattern might be expected due to the clustered random assignment of primary care practices. Because people who seek care at the same primary care practice might have similar characteristics, and we assigned all enrollees associated with a practice the same random assignment status, differences in the treatment and control groups are more likely to appear when random assignment occurred at the practice level than individual level. Nonetheless, we observed only three statistically significant differences in enrollee characteristics—the number of differences we might detect through chance alone with a significance level of 10 percent.

Exhibit A.10. RETAINWOR*KS*: Baseline characteristics of all enrollees, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	61.5	60.4	62.7	-2.3	0.46
Age[a]					**0.70**
18–29	16.5	16.6	16.5	0.1	
30–39	22.9	24.1	21.7	2.4	
40–44	13.5	12.7	14.4	-1.6	
45–49	13.3	13.7	12.8	0.9	
50–54	12.5	12.5	12.4	0.2	
55–59	11.1	11.7	10.5	1.1	
60 and older	10.2	8.7	11.8	-3.1	
Average (years)	43.1	42.9	43.3	-0.5	0.56
Race and ethnicity				†††	**0.00**
Hispanic	9.2	8.7	9.8	-1.1	
White, non-Hispanic	71.9	69.2	74.8	-5.6	
Black, non-Hispanic	12.6	14.6	10.3	4.2	
Asian, non-Hispanic	s	s	s	s	
More than one race	3.2	4.1	2.2	1.9	
Other, non-Hispanic	2.2	2.2	2.2	0.0	
Missing	s	s	s	s	
Preferred language					**0.78**
English	99.3	99.2	99.4	-0.2	
Spanish	0.7	0.8	0.6	0.2	
Other	0.0	0.0	0.0	0.0	
Education					**0.57**
Less than a high school diploma	5.1	5.1	5.1	0.0	
High school diploma, GED, or certificate of completion	46.0	47.5	44.3	3.3	
Occupational certificate, license, or two-year college degree	29.4	29.4	29.4	0.1	
Four-year college or postgraduate degree	19.5	18.0	21.3	-3.3	
Injury or illness characteristics					
Type of illness					**0.66**
Musculoskeletal, back	17.1	17.0	17.3	-0.3	
Musculoskeletal, non-back	49.2	47.7	51.0	-3.3	
Mental	7.6	8.0	7.1	0.8	
Other	26.1	27.4	24.6	2.8	
Missing	0.0	0.0	0.0	0.0	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	46.9	47.9	45.8	2.1	0.49
Injury or result of an accident	47.9	45.9	50.1	-4.1	0.18
Work-related injury or illness	29.4	27.5	31.5	-3.9	0.17
Injury or illness as part of a workers' compensation claim	17.9	16.3	19.6	-3.3	0.17
Time between injury or illness and enrollment					
Total days	62	45	82	-37	0.33
Enrolled before onset of injury or illness	s	s	s	s	s
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.98**
Not employed	19.2	19.0	19.5	-0.5	
Self-employed	4.3	4.3	4.2	0.1	
Employed	76.5	76.7	76.3	0.5	
Time since last worked at enrollment[a]					**0.69**
Working at enrollment	35.8	37.3	34.2	3.1	
Last worked less than one week before	16.2	15.0	17.5	-2.6	
Last worked one to four weeks before	17.0	17.8	16.2	1.6	
Last worked one to three months before	15.3	14.9	15.7	-0.7	
Last worked more than three months before	15.7	15.1	16.4	-1.3	
Hours per week usually worked before injury or illness	40.4	40.0	40.9	-0.9	0.20
Tenure at most recent job					**0.97**
Less than six months	22.8	22.7	23.1	-0.4	
Six months to one year	12.8	13.3	12.2	1.1	
One to two years	18.1	17.7	18.5	-0.8	
Two to five years	19.3	18.9	19.8	-1.0	
More than five years	27.0	27.5	26.4	1.1	
Occupational classification of pre-injury or pre-illness job				†	**0.09**
Management, professional, or related	28.3	26.3	30.6	-4.2	
Service	35.2	35.2	35.2	0.0	
Sales and office	9.2	8.6	10.0	-1.5	
Natural resources, construction, or maintenance	8.0	9.7	6.1	3.6	
Production, transportation, or material moving	19.2	20.2	18.1	2.2	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	n.a.	n.a.	n.a.	n.a.	n.a.
Earned $1,000 or more in one of the past 12 months	80.0	79.4	80.6	-1.2	0.60

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	2.0	2.2	1.7	0.5	0.61
Workers' compensation	5.3	5.5	5.0	0.5	0.73
Employer-provided or other private disability insurance	7.6	7.0	8.2	-1.3	0.43
Other public programs	2.9	2.4	3.5	-1.1	0.31
Applied for or received SSDI or SSI in the past three years	5.2	4.1	6.4	-2.3	0.12
Covered by health insurance	86.6	89.4	83.5	5.8***	0.01
Total number of enrollees	**963**	**509**	**454**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.11. RETAINWOR*KS*: Baseline characteristics of early follow-up survey respondents, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	62.5	60.2	65.1	-5.0	0.14
Age[a]					**0.67**
18–29	15.6	15.8	15.2	0.6	
30–39	22.1	22.9	21.2	1.7	
40–44	13.9	12.9	15.1	-2.3	
45–49	13.9	14.7	12.9	1.8	
50–54	12.6	12.6	12.6	0.0	
55–59	11.2	11.9	10.4	1.5	
60 and older	10.7	9.2	12.4	-3.2	
Average (years)	43.5	43.4	43.7	-0.4	0.64
Race and ethnicity				†††	**0.00**
Hispanic	9.5	9.1	10.0	-0.9	
White, non-Hispanic	71.9	69.7	74.5	-4.7	
Black, non-Hispanic	12.3	14.1	10.2	3.9	
Asian, non-Hispanic	s	s	s	s	
More than one race	3.2	4.0	2.4	1.6	
Other, non-Hispanic	2.3	2.2	2.5	-0.2	
Missing	s	s	s	s	
Preferred language					**0.88**
English	99.2	99.1	99.2	-0.1	
Spanish	0.8	0.9	0.8	0.1	
Other	0.0	0.0	0.0	0.0	
Education					**0.44**
Less than a high school diploma	4.9	5.0	4.7	0.3	
High school diploma, GED, or certificate of completion	44.8	46.8	42.5	4.3	
Occupational certificate, license, or two-year college degree	29.7	29.5	30.0	-0.5	
Four-year college or postgraduate degree	20.6	18.7	22.8	-4.1	
Injury or illness characteristics					
Type of illness					**0.59**
Musculoskeletal, back	17.4	17.6	17.2	0.3	
Musculoskeletal, non-back	49.7	47.6	52.0	-4.3	
Mental	7.0	7.3	6.5	0.8	
Other	26.0	27.5	24.3	3.2	
Missing	0.0	0.0	0.0	0.0	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	46.4	47.7	44.9	2.8	0.40
Injury or result of an accident	47.4	45.2	49.8	-4.6	0.17
Work-related injury or illness	29.7	28.2	31.4	-3.2	0.30
Injury or illness as part of a workers' compensation claim	17.7	16.2	19.3	-3.1	0.23
Time between injury or illness and enrollment					
Total days	65	46	88	-42	0.34
Enrolled before onset of injury or illness	s	s	s	s	s
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.91**
Not employed	19.2	19.7	18.7	1.0	
Self-employed	3.9	4.0	3.8	0.3	
Employed	76.9	76.3	77.6	-1.3	
Time since last worked at enrollment[a]					**0.91**
Working at enrollment	36.4	37.2	35.4	1.9	
Last worked less than one week before	15.9	14.9	17.0	-2.1	
Last worked one to four weeks before	16.5	17.0	16.0	1.0	
Last worked one to three months before	15.5	15.7	15.4	0.3	
Last worked more than three months before	15.7	15.2	16.3	-1.1	
Hours per week usually worked before injury or illness	40.3	39.8	40.8	-1.0	0.19
Tenure at most recent job					**0.84**
Less than six months	21.9	21.6	22.3	-0.7	
Six months to one year	12.2	13.4	10.9	2.5	
One to two years	18.7	18.2	19.4	-1.2	
Two to five years	19.7	19.1	20.3	-1.1	
More than five years	27.5	27.7	27.2	0.5	
Occupational classification of pre-injury or pre-illness job				†	**0.08**
Management, professional, or related	29.8	28.2	31.7	-3.5	
Service	34.2	33.8	34.5	-0.7	
Sales and office	9.3	8.5	10.2	-1.7	
Natural resources, construction, or maintenance	7.5	9.3	5.3	4.0	
Production, transportation, or material moving	19.2	20.1	18.2	1.9	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	n.a.	n.a.	n.a.	n.a.	n.a.
Earned $1,000 or more in one of the past 12 months	80.1	78.3	82.2	-3.9	0.13

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	1.7	1.5	1.8	-0.2	0.79
Workers' compensation	5.3	5.6	5.1	0.5	0.74
Employer-provided or other private disability insurance	7.7	7.0	8.6	-1.6	0.36
Other public programs	2.9	2.0	3.9	-1.9	0.11
Applied for or received SSDI or SSI in the past three years	5.3	4.6	6.2	-1.7	0.28
Covered by health insurance	87.3	89.3	85.0	4.3*	0.06
Total number of enrollees	**834**	**445**	**389**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.12. RETAIN Kentucky: Baseline characteristics of all enrollees, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	61.1	60.5	61.8	-1.2	0.48
Age[a]					**0.89**
18–29	18.1	18.1	18.1	0.0	
30–39	27.2	28.0	26.3	1.7	
40–44	14.3	13.6	15.0	-1.4	
45–49	12.3	12.1	12.4	-0.3	
50–54	11.6	11.8	11.4	0.5	
55–59	8.5	8.5	8.6	-0.1	
60 and older	8.0	7.8	8.2	-0.4	
Average (years)	41.7	41.6	41.8	-0.2	0.59
Race and ethnicity					**0.54**
Hispanic	3.2	3.7	2.7	1.0	
White, non-Hispanic	74.2	74.7	73.8	0.9	
Black, non-Hispanic	16.1	15.7	16.5	-0.9	
Asian, non-Hispanic	0.6	0.6	0.5	0.1	
More than one race	5.1	4.6	5.6	-1.0	
Other, non-Hispanic	0.3	0.4	0.3	0.0	
Missing	0.5	0.4	0.5	-0.1	
Preferred language					**0.49**
English	99.2	99.2	99.3	-0.1	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education				†	**0.08**
Less than a high school diploma	6.7	6.4	6.9	-0.5	
High school diploma, GED, or certificate of completion	48.0	49.1	46.8	2.3	
Occupational certificate, license, or two-year college degree	22.0	20.3	23.9	-3.5	
Four-year college or postgraduate degree	23.3	24.1	22.3	1.8	
Injury or illness characteristics					
Type of illness					**0.62**
Musculoskeletal, back	9.3	10.0	8.5	1.5	
Musculoskeletal, non-back	16.6	16.4	16.8	-0.4	
Mental	33.0	32.9	33.0	0.0	
Other	40.9	40.3	41.5	-1.2	
Missing	0.3	0.3	0.2	0.1	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	18.3	18.0	18.6	-0.5	0.68
Injury or result of an accident	19.1	19.5	18.8	0.7	0.62
Work-related injury or illness	5.8	6.6	4.9	1.7**	0.04
Injury or illness as part of a workers' compensation claim	1.1	1.3	1.0	0.3	0.50
Time between injury or illness and enrollment					
Total days	266	274	256	18	0.72
Enrolled before onset of injury or illness	0.0	0.0	0.0	0.0	n.a.
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.75**
Not employed	34.8	34.4	35.3	-0.9	
Self-employed	4.6	4.4	4.7	-0.3	
Employed	60.6	61.2	60.0	1.2	
Time since last worked at enrollment[a]					**0.98**
Working at enrollment	27.5	27.4	27.7	-0.3	
Last worked less than one week before	20.5	20.5	20.4	0.1	
Last worked one to four weeks before	14.5	14.7	14.2	0.5	
Last worked one to three months before	18.1	18.3	17.9	0.3	
Last worked more than three months before	19.4	19.1	19.8	-0.7	
Hours per week usually worked before injury or illness	37.1	37.1	37.0	0.1	0.80
Tenure at most recent job					**0.95**
Less than six months	33.2	33.2	33.2	-0.1	
Six months to one year	15.6	16.1	15.1	1.0	
One to two years	13.4	13.2	13.6	-0.4	
Two to five years	16.9	16.6	17.1	-0.5	
More than five years	20.9	20.9	21.0	-0.1	
Occupational classification of pre-injury or pre-illness job					**0.24**
Management, professional, or related	27.4	28.2	26.5	1.7	
Service	39.9	39.8	40.0	-0.1	
Sales and office	8.5	7.7	9.4	-1.8	
Natural resources, construction, or maintenance	6.5	6.0	7.0	-1.0	
Production, transportation, or material moving	17.7	18.3	17.1	1.2	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	5,957	6,095	5,804	290	0.19
Earned $1,000 or more in one of the past 12 months	81.0	81.1	80.9	0.2	0.87
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.8	0.7	0.9	-0.2	0.44

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Veterans benefits	1.5	1.3	1.7	-0.4	0.36
Workers' compensation	s	s	s	s	s
Employer-provided or other private disability insurance	5.0	5.5	4.5	1.0	0.17
Other public programs	11.4	11.2	11.7	-0.6	0.60
Applied for or received SSDI or SSI in the past three years	2.4	2.1	2.8	-0.7	0.22
Covered by health insurance	93.0	92.5	93.5	-1.1	0.24
Total number of enrollees	**3,153**	**1,654**	**1,499**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.13. RETAIN Kentucky: Baseline characteristics of early follow-up survey respondents, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	62.2	61.7	62.8	-1.2	0.55
Age[a]					**0.87**
18–29	17.4	17.1	17.7	-0.6	
30–39	27.4	27.8	27.0	0.7	
40–44	14.3	13.8	14.7	-0.9	
45–49	12.2	11.6	12.8	-1.1	
50–54	11.8	12.3	11.3	1.0	
55–59	8.6	9.0	8.2	0.9	
60 and older	8.3	8.4	8.3	0.1	
Average (years)	41.9	42.1	41.8	0.3	0.52
Race and ethnicity					**0.18**
Hispanic	3.1	3.5	2.7	0.9	
White, non-Hispanic	74.3	74.5	74.1	0.4	
Black, non-Hispanic	16.2	16.1	16.2	-0.1	
Asian, non-Hispanic	0.7	0.7	0.6	0.0	
More than one race	5.0	4.5	5.5	-1.1	
Other, non-Hispanic	s	s	s	s	
Missing	s	s	s	s	
Preferred language					**0.56**
English	99.2	99.1	99.3	-0.2	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education				††	**0.02**
Less than a high school diploma	6.0	5.0	7.0	-2.0	
High school diploma, GED, or certificate of completion	47.0	48.4	45.5	2.9	
Occupational certificate, license, or two-year college degree	22.3	20.7	24.0	-3.3	
Four-year college or postgraduate degree	24.8	25.9	23.5	2.4	
Injury or illness characteristics					
Type of illness					**0.68**
Musculoskeletal, back	s	s	s	s	
Musculoskeletal, non-back	16.9	17.1	16.6	0.6	
Mental	32.1	31.7	32.5	-0.8	
Other	41.3	40.7	41.9	-1.2	
Missing	s	s	s	s	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	17.8	18.2	17.3	0.9	0.52
Injury or result of an accident	19.6	20.2	18.9	1.4	0.37
Work-related injury or illness	6.0	6.7	5.3	1.3	0.16
Injury or illness as part of a workers' compensation claim	1.0	1.3	0.6	0.7*	0.08
Time between injury or illness and enrollment					
Total days	266	269	262	7	0.90
Enrolled before onset of injury or illness	0.0	0.0	0.0	0.0	n.a.
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.74**
Not employed	34.5	34.2	34.8	-0.6	
Self-employed	4.4	4.2	4.7	-0.5	
Employed	61.1	61.7	60.5	1.2	
Time since last worked at enrollment[a]					**0.97**
Working at enrollment	28.3	28.1	28.4	-0.3	
Last worked less than one week before	20.2	20.7	19.6	1.1	
Last worked one to four weeks before	14.6	14.6	14.5	0.1	
Last worked one to three months before	17.5	17.4	17.7	-0.4	
Last worked more than three months before	19.4	19.2	19.6	-0.4	
Hours per week usually worked before injury or illness	36.9	37.0	36.9	0.0	0.91
Tenure at most recent job					**0.91**
Less than six months	32.5	32.4	32.6	-0.2	
Six months to one year	15.5	16.0	15.1	0.9	
One to two years	13.6	13.4	13.7	-0.3	
Two to five years	17.2	16.7	17.8	-1.1	
More than five years	21.2	21.6	20.8	0.8	
Occupational classification of pre-injury or pre-illness job					**0.31**
Management, professional, or related	28.5	29.9	27.0	2.8	
Service	39.6	39.5	39.6	0.0	
Sales and office	9.3	8.4	10.2	-1.7	
Natural resources, construction, or maintenance	5.5	5.2	5.9	-0.7	
Production, transportation, or material moving	17.2	17.0	17.3	-0.3	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	5,986	6,098	5,868	230	0.34
Earned $1,000 or more in one of the past 12 months	81.3	81.2	81.4	-0.2	0.90
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.8	0.8	0.8	-0.1	0.85
Veterans benefits	1.4	1.1	1.6	-0.4	0.34

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Workers' compensation	s	s	s	s	s
Employer-provided or other private disability insurance	4.7	4.6	4.7	-0.1	0.88
Other public programs	11.2	11.1	11.2	-0.1	0.95
Applied for or received SSDI or SSI in the past three years	2.5	2.2	2.8	-0.6	0.33
Covered by health insurance	93.3	92.5	94.1	-1.6	0.11
Total number of enrollees	**2,567**	**1,327**	**1,240**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.14. Minnesota RETAIN: Baseline characteristics of all enrollees, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	55.1	55.1	55.1	0.0	0.98
Age[a]					**0.87**
18–29	17.5	17.9	17.2	0.7	
30–39	24.1	23.6	24.6	-1.0	
40–44	13.2	12.9	13.4	-0.6	
45–49	12.6	12.8	12.3	0.5	
50–54	12.8	13.1	12.5	0.6	
55–59	11.0	11.4	10.6	0.8	
60 and older	8.8	8.3	9.4	-1.0	
Average (years)	42.5	42.5	42.6	-0.1	0.79
Race and ethnicity					**0.65**
Hispanic	7.6	7.1	8.0	-0.9	
White, non-Hispanic	74.3	73.5	75.1	-1.5	
Black, non-Hispanic	9.8	10.5	9.0	1.5	
Asian, non-Hispanic	1.8	1.8	1.7	0.0	
More than one race	3.9	4.1	3.6	0.5	
Other, non-Hispanic	1.8	2.0	1.6	0.3	
Missing	0.9	1.0	0.9	0.1	
Preferred language					**0.79**
English	97.5	97.3	97.7	-0.4	
Spanish	1.1	1.1	1.0	0.1	
Other	1.4	1.6	1.3	0.2	
Education					**0.98**
Less than a high school diploma	3.8	3.8	3.8	0.1	
High school diploma, GED, or certificate of completion	37.6	37.8	37.5	0.3	
Occupational certificate, license, or two-year college degree	25.8	25.9	25.7	0.2	
Four-year college or postgraduate degree	32.7	32.4	33.0	-0.6	
Injury or illness characteristics					
Type of illness					**0.41**
Musculoskeletal, back	10.4	11.3	9.5	1.8	
Musculoskeletal, non-back	49.7	49.6	49.8	-0.2	
Mental	14.2	14.0	14.5	-0.5	
Other	25.7	25.2	26.2	-1.0	
Missing	0.0	0.0	0.0	0.0	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	44.6	44.1	45.2	-1.0	0.54
Injury or result of an accident	39.5	40.2	38.8	1.4	0.41
Work-related injury or illness	14.1	13.8	14.3	-0.4	0.72
Injury or illness as part of a workers' compensation claim	5.2	5.2	5.2	-0.1	0.94
Time between injury or illness and enrollment					
Total days	48	49	48	0	0.93
Enrolled before onset of injury or illness	7.3	7.5	7.0	0.6	0.52
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.93**
Not employed	15.2	15.2	15.2	0.0	
Self-employed	8.1	7.9	8.3	-0.4	
Employed	76.7	76.9	76.5	0.4	
Time since last worked at enrollment[a]					**0.45**
Working at enrollment	26.9	27.0	26.7	0.2	
Last worked less than one week before	14.2	14.0	14.3	-0.3	
Last worked one to four weeks before	25.2	24.6	25.8	-1.2	
Last worked one to three months before	23.1	22.7	23.4	-0.7	
Last worked more than three months before	10.7	11.7	9.7	2.0	
Hours per week usually worked before injury or illness	37.9	38.0	37.9	0.2	0.67
Tenure at most recent job					**0.39**
Less than six months	20.9	21.6	20.3	1.3	
Six months to one year	13.7	13.3	14.2	-0.9	
One to two years	14.9	15.8	13.9	1.9	
Two to five years	18.2	17.6	18.8	-1.2	
More than five years	32.3	31.7	32.8	-1.1	
Occupational classification of pre-injury or pre-illness job					**0.79**
Management, professional, or related	36.7	36.3	37.1	-0.8	
Service	31.9	32.3	31.5	0.8	
Sales and office	7.8	7.4	8.3	-0.9	
Natural resources, construction, or maintenance	9.3	9.6	9.0	0.6	
Production, transportation, or material moving	14.3	14.4	14.1	0.3	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	10,026	9,927	10,124	-197	0.54
Earned $1,000 or more in one of the past 12 months	80.9	81.4	80.3	1.1	0.42

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	1.0	1.1	0.9	0.2	0.57
Workers' compensation	1.0	1.1	0.9	0.3	0.45
Employer-provided or other private disability insurance	2.4	2.2	2.7	-0.5	0.36
Other public programs	12.2	11.7	12.8	-1.1	0.31
Applied for or received SSDI or SSI in the past three years	1.1	0.9	1.2	-0.4	0.31
Covered by health insurance	96.0	95.8	96.1	-0.3	0.62
Total number of enrollees	**3,199**	**1,598**	**1,601**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.15. Minnesota RETAIN: Baseline characteristics of early follow-up survey respondents, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	56.1	56.5	55.7	0.8	0.66
Age[a]					**0.86**
18–29	17.2	17.2	17.2	0.0	
30–39	23.4	23.5	23.3	0.2	
40–44	13.3	12.7	13.9	-1.2	
45–49	12.4	12.8	11.9	0.9	
50–54	13.1	13.2	12.9	0.3	
55–59	11.4	11.8	11.0	0.8	
60 and older	9.2	8.7	9.7	-1.1	
Average (years)	42.9	42.8	42.9	-0.1	0.87
Race and ethnicity					**0.80**
Hispanic	7.4	7.0	7.8	-0.7	
White, non-Hispanic	74.8	74.1	75.5	-1.4	
Black, non-Hispanic	9.7	10.6	8.8	1.8	
Asian, non-Hispanic	1.7	1.9	1.6	0.2	
More than one race	3.8	3.7	3.8	-0.1	
Other, non-Hispanic	1.7	1.7	1.6	0.1	
Missing	0.9	0.9	0.9	0.1	
Preferred language					**0.86**
English	97.6	97.5	97.7	-0.2	
Spanish	1.0	1.1	0.9	0.2	
Other	1.4	1.4	1.4	0.0	
Education					**0.87**
Less than a high school diploma	3.3	3.1	3.4	-0.3	
High school diploma, GED, or certificate of completion	36.6	36.4	36.8	-0.4	
Occupational certificate, license, or two-year college degree	26.1	26.7	25.5	1.2	
Four-year college or postgraduate degree	34.1	33.8	34.3	-0.5	
Injury or illness characteristics					
Type of illness					**0.51**
Musculoskeletal, back	10.7	11.6	9.8	1.8	
Musculoskeletal, non-back	49.5	48.9	50.0	-1.1	
Mental	13.8	13.8	13.9	-0.1	
Other	25.9	25.7	26.2	-0.5	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Missing	0.0	0.0	0.0	0.0	
New injury or illness	43.8	43.7	44.0	-0.3	0.87
Injury or result of an accident	39.2	39.3	39.1	0.2	0.93
Work-related injury or illness	14.3	13.7	14.9	-1.2	0.39
Injury or illness as part of a workers' compensation claim	5.2	4.7	5.7	-1.0	0.25
Time between injury or illness and enrollment					
Total days	49	49	48	1	0.85
Enrolled before onset of injury or illness	7.7	7.9	7.4	0.5	0.58
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.89**
Not employed	15.1	15.1	15.0	0.1	
Self-employed	8.2	7.9	8.4	-0.5	
Employed	76.8	76.9	76.6	0.4	
Time since last worked at enrollment[a]					**0.52**
Working at enrollment	27.2	27.6	26.9	0.7	
Last worked less than one week before	14.1	14.0	14.1	-0.1	
Last worked one to four weeks before	25.0	24.1	25.9	-1.8	
Last worked one to three months before	23.3	23.0	23.7	-0.7	
Last worked more than three months before	10.4	11.3	9.5	1.9	
Hours per week usually worked before injury or illness	37.9	38.0	37.8	0.2	0.67
Tenure at most recent job					**0.51**
Less than six months	20.3	20.7	19.8	0.9	
Six months to one year	13.6	13.1	14.2	-1.2	
One to two years	14.6	15.5	13.6	1.9	
Two to five years	18.5	17.8	19.3	-1.5	
More than five years	32.9	32.9	33.0	-0.1	
Occupational classification of pre-injury or pre-illness job					**0.52**
Management, professional, or related	37.5	37.5	37.5	0.0	
Service	31.9	31.7	32.0	-0.3	
Sales and office	8.3	7.5	9.0	-1.5	
Natural resources, construction, or maintenance	8.7	9.2	8.1	1.1	
Production, transportation, or material moving	13.7	14.0	13.4	0.7	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	10,068	10,044	10,093	-49	0.89
Earned $1,000 or more in one of the past 12 months	81.2	81.4	81.1	0.3	0.82

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	0.9	0.8	0.9	-0.1	0.73
Workers' compensation	1.1	1.2	1.0	0.2	0.59
Employer-provided or other private disability insurance	2.4	2.1	2.8	-0.7	0.21
Other public programs	12.5	12.0	13.0	-1.0	0.41
Applied for or received SSDI or SSI in the past three years	0.8	0.6	1.1	-0.5	0.15
Covered by health insurance	96.3	96.0	96.6	-0.6	0.40
Total number of enrollees	**2,649**	**1,356**	**1,293**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.16. Ohio RETAIN: Baseline characteristics of all enrollees, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	62.0	62.0	62.0	0.0	0.99
Age[a]					**0.18**
18–29	14.2	14.1	14.3	-0.2	
30–39	20.2	20.7	19.6	1.1	
40–44	12.5	12.6	12.5	0.1	
45–49	13.0	12.4	13.6	-1.2	
50–54	15.0	14.2	15.8	-1.6	
55–59	14.4	14.3	14.6	-0.3	
60 and older	10.7	11.7	9.6	2.1	
Average (years)	44.5	44.5	44.4	0.1	0.76
Race and ethnicity					**0.59**
Hispanic	4.2	4.2	4.3	-0.1	
White, non-Hispanic	76.3	76.5	76.1	0.4	
Black, non-Hispanic	17.1	16.8	17.4	-0.7	
Asian, non-Hispanic	0.5	0.6	0.4	0.2	
More than one race	1.5	1.4	1.6	-0.2	
Other, non-Hispanic	s	s	s	s	
Missing	s	s	s	s	
Preferred language					**0.68**
English	99.6	99.7	99.5	0.2	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education					**0.39**
Less than a high school diploma	4.1	4.1	4.2	-0.1	
High school diploma, GED, or certificate of completion	38.7	39.6	37.7	1.9	
Occupational certificate, license, or two-year college degree	32.8	31.7	33.9	-2.3	
Four-year college or postgraduate degree	24.4	24.6	24.1	0.5	
Injury or illness characteristics					
Type of illness					**0.53**
Musculoskeletal, back	9.4	9.3	9.4	-0.2	
Musculoskeletal, non-back	71.2	70.6	71.9	-1.3	
Mental	1.2	1.1	1.3	-0.2	
Other	18.2	19.0	17.4	1.6	
Missing	0.0	0.0	0.0	0.0	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	47.9	48.0	47.9	0.1	0.96
Injury or result of an accident	58.5	58.6	58.3	0.4	0.79
Work-related injury or illness	3.9	3.7	4.1	-0.4	0.50
Injury or illness as part of a workers' compensation claim	0.0	0.0	0.0	0.0	n.a.
Time between injury or illness and enrollment					
Total days	21	20	22	-2***	0.00
Enrolled before onset of injury or illness	s	s	s	s	s
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.59**
Not employed	12.2	12.3	12.2	0.1	
Self-employed	2.7	3.0	2.5	0.5	
Employed	85.1	84.8	85.4	-0.6	
Time since last worked at enrollment[a]					**0.74**
Working at enrollment	27.5	28.0	26.9	1.1	
Last worked less than one week before	16.6	16.0	17.1	-1.1	
Last worked one to four weeks before	35.0	35.3	34.6	0.7	
Last worked one to three months before	10.9	10.9	11.0	-0.1	
Last worked more than three months before	10.0	9.7	10.3	-0.6	
Hours per week usually worked before injury or illness	38.8	38.8	38.7	0.1	0.66
Tenure at most recent job					**0.70**
Less than six months	15.7	15.0	16.3	-1.3	
Six months to one year	11.6	11.7	11.6	0.1	
One to two years	13.3	13.3	13.2	0.1	
Two to five years	18.2	18.7	17.6	1.2	
More than five years	41.2	41.2	41.3	-0.1	
Occupational classification of pre-injury or pre-illness job					**0.12**
Management, professional, or related	28.6	27.1	30.2	-3.0	
Service	39.1	40.3	37.9	2.4	
Sales and office	8.8	9.1	8.6	0.5	
Natural resources, construction, or maintenance	5.4	5.0	5.7	-0.7	
Production, transportation, or material moving	18.1	18.5	17.7	0.8	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	10,203	10,096	10,310	-213	0.38
Earned $1,000 or more in one of the past 12 months	82.3	82.3	82.3	0.0	0.99
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.2	0.2	0.2	0.0	0.80

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Veterans benefits	0.9	0.9	0.9	-0.1	0.84
Workers' compensation	s	s	s	s	s
Employer-provided or other private disability insurance	25.2	25.4	25.0	0.4	0.72
Other public programs	0.3	0.4	0.3	0.1	0.59
Applied for or received SSDI or SSI in the past three years	0.8	0.5	1.1	-0.6**	0.03
Covered by health insurance	97.3	97.5	97.2	0.3	0.56
Total number of enrollees	**4,525**	**2,264**	**2,261**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.17. Ohio RETAIN: Baseline characteristics of early follow-up survey respondents, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex[a]					
Female	62.9	62.6	63.2	-0.6	0.72
Age[a]					**0.24**
18–29	13.7	13.6	13.7	-0.1	
30–39	19.5	20.1	18.9	1.2	
40–44	12.3	12.5	12.2	0.4	
45–49	13.1	12.6	13.5	-0.9	
50–54	15.3	14.3	16.4	-2.1	
55–59	15.0	14.8	15.2	-0.4	
60 and older	11.1	12.1	10.1	2.0	
Average (years)	44.8	44.8	44.8	0.0	1.00
Race and ethnicity					**0.80**
Hispanic	4.1	3.8	4.4	-0.5	
White, non-Hispanic	76.9	77.2	76.6	0.5	
Black, non-Hispanic	16.6	16.5	16.8	-0.3	
Asian, non-Hispanic	0.5	0.7	0.4	0.3	
More than one race	1.5	1.4	1.6	-0.2	
Other, non-Hispanic	s	s	s	s	
Missing	s	s	s	s	
Preferred language					**0.90**
English	99.6	99.6	99.5	0.1	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education					**0.29**
Less than a high school diploma	3.9	3.8	3.9	-0.1	
High school diploma, GED, or certificate of completion	37.6	38.8	36.4	2.4	
Occupational certificate, license, or two-year college degree	32.3	31.0	33.7	-2.7	
Four-year college or postgraduate degree	26.2	26.5	25.9	0.5	
Injury or illness characteristics					
Type of illness					**0.64**
Musculoskeletal, back	9.5	9.4	9.5	-0.1	
Musculoskeletal, non-back	71.1	70.8	71.4	-0.5	
Mental	1.1	0.9	1.3	-0.4	
Other	18.3	18.8	17.8	1.0	
Missing	0.0	0.0	0.0	0.0	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	46.9	47.1	46.6	0.6	0.71
Injury or result of an accident	57.8	58.1	57.5	0.6	0.71
Work-related injury or illness	3.9	3.5	4.4	-0.9	0.16
Injury or illness as part of a workers' compensation claim	0.0	0.0	0.0	0.0	n.a.
Time between injury or illness and enrollment					
Total days	21	20	23	-3***	0.00
Enrolled before onset of injury or illness	0.0	0.0	0.0	0.0	n.a.
Missing	0.0	0.0	0.0	0.0	n.a.
Recent work history					
Employment status at enrollment[a]					**0.72**
Not employed	12.1	12.1	12.0	0.1	
Self-employed	2.8	3.0	2.6	0.4	
Employed	85.2	84.9	85.4	-0.5	
Time since last worked at enrollment[a]					**0.52**
Working at enrollment	27.9	28.3	27.6	0.8	
Last worked less than one week before	16.8	16.1	17.5	-1.4	
Last worked one to four weeks before	34.5	35.4	33.5	1.9	
Last worked one to three months before	10.7	10.6	10.8	-0.2	
Last worked more than three months before	10.0	9.5	10.5	-1.0	
Hours per week usually worked before injury or illness	38.6	38.7	38.5	0.1	0.71
Tenure at most recent job					**0.61**
Less than six months	15.5	15.2	15.9	-0.7	
Six months to one year	11.2	11.1	11.2	-0.1	
One to two years	13.5	13.0	14.0	-1.0	
Two to five years	18.0	18.8	17.1	1.7	
More than five years	41.9	41.9	41.8	0.0	
Occupational classification of pre-injury or pre-illness job					**0.18**
Management, professional, or related	29.8	28.1	31.5	-3.3	
Service	38.9	40.1	37.6	2.6	
Sales and office	9.0	9.0	8.9	0.1	
Natural resources, construction, or maintenance	5.0	4.9	5.1	-0.2	
Production, transportation, or material moving	17.4	17.8	16.9	0.9	
Missing	0.0	0.0	0.0	0.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	10,314	10,232	10,399	-167	0.53
Earned $1,000 or more in one of the past 12 months	82.3	82.3	82.3	0.0	0.99
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	0.2	0.1	0.2	-0.1	0.55

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Veterans benefits	0.9	0.9	1.0	-0.1	0.79
Workers' compensation	s	s	s	s	s
Employer-provided or other private disability insurance	25.4	25.8	25.0	0.9	0.52
Other public programs	0.3	0.3	0.3	0.0	0.83
Applied for or received SSDI or SSI in the past three years	0.9	0.6	1.2	-0.6**	0.04
Covered by health insurance	97.6	97.8	97.4	0.5	0.37
Total number of enrollees	**3,800**	**1,918**	**1,882**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

[a] We stratified random assignment of enrollees based on this characteristic, so we expect it to be balanced between the treatment and control group by design.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

n.a. = not applicable; s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.18. Vermont RETAIN: Baseline characteristics of all enrollees, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex					
Female	64.0	60.4	68.7	-8.3***	0.01
Age				†	**0.08**
18–29	19.0	21.1	16.4	4.8	
30–39	24.4	26.9	21.3	5.6	
40–44	13.5	11.9	15.6	-3.7	
45–49	11.2	11.0	11.3	-0.3	
50–54	10.0	8.8	11.7	-2.9	
55–59	9.6	9.5	9.8	-0.3	
60 and older	12.2	10.8	13.9	-3.2	
Average (years)	42.7	41.7	44.0	-2.4**	0.02
Race and ethnicity					**0.83**
Hispanic	3.5	3.5	3.5	0.0	
White, non-Hispanic	88.2	89.0	87.3	1.7	
Black, non-Hispanic	1.4	1.6	1.1	0.4	
Asian, non-Hispanic	s	s	s	s	
More than one race	2.9	2.6	3.2	-0.6	
Other, non-Hispanic	s	s	s	s	
Missing	2.6	2.2	3.2	-1.0	
Preferred language				†††	**0.00**
English	99.7	99.6	100.0	-0.4	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education					**0.33**
Less than a high school diploma	3.6	4.2	2.9	1.4	
High school diploma, GED, or certificate of completion	33.5	33.5	33.3	0.2	
Occupational certificate, license, or two-year college degree	17.8	15.6	20.7	-5.1	
Four-year college or postgraduate degree	45.1	46.6	43.1	3.5	
Injury or illness characteristics					
Type of illness					**0.80**
Musculoskeletal, back	9.4	9.3	9.6	-0.3	
Musculoskeletal, non-back	21.9	21.2	22.9	-1.6	
Mental	41.5	43.4	39.0	4.5	
Other	24.8	23.7	26.3	-2.6	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Missing	2.4	2.4	2.4	0.0	
New injury or illness	18.4	17.7	19.3	-1.7	0.56
Injury or result of an accident	19.2	20.7	17.2	3.4	0.24
Work-related injury or illness	23.2	22.6	24.0	-1.4	0.67
Injury or illness as part of a workers' compensation claim	5.7	5.9	5.5	0.4	0.78
Time between injury or illness and enrollment					
Total days	417	432	397	36	0.71
Enrolled before onset of injury or illness	0.8	0.7	0.8	-0.1	0.80
Missing	1.9	1.8	2.0	-0.2	0.82
Recent work history					
Employment status at enrollment[a]					**0.90**
Not employed	24.4	23.9	25.1	-1.1	
Self-employed	10.3	10.6	9.9	0.7	
Employed	65.3	65.5	65.1	0.4	
Time since last worked at enrollment[a]				++	**0.05**
Working at enrollment	39.1	39.9	38.0	1.9	
Last worked less than one week before	24.2	21.8	27.3	-5.5	
Last worked one to four weeks before	10.5	12.9	7.5	5.3	
Last worked one to three months before	11.9	11.1	12.9	-1.8	
Last worked more than three months before	14.3	14.3	14.3	0.0	
Hours per week usually worked before injury or illness	38.4	38.3	38.7	-0.4	0.57
Tenure at most recent job					**0.44**
Less than six months	26.7	28.4	24.5	4.0	
Six months to one year	14.9	15.2	14.5	0.7	
One to two years	16.3	17.4	14.9	2.5	
Two to five years	17.0	16.4	17.9	-1.5	
More than five years	25.1	22.6	28.3	-5.7	
Occupational classification of pre-injury or pre-illness job					**0.27**
Management, professional, or related	43.5	42.4	44.9	-2.5	
Service	29.4	31.8	26.4	5.5	
Sales and office	9.5	7.7	11.9	-4.1	
Natural resources, construction, or maintenance	7.8	8.5	6.8	1.6	
Production, transportation, or material moving	7.9	7.8	8.0	-0.2	
Missing	1.9	1.8	2.0	-0.2	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	6,562	6,640	6,462	178	0.81
Earned $1,000 or more in one of the past 12 months	76.9	77.2	76.6	0.5	0.86

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	1.6	2.2	1.0	1.2	0.37
Workers' compensation	2.4	2.8	1.8	1.1	0.26
Employer-provided or other private disability insurance	2.4	2.0	2.9	-0.9	0.36
Other public programs	11.7	11.3	12.2	-0.9	0.76
Applied for or received SSDI or SSI in the past three years	6.5	7.0	5.9	1.1	0.49
Covered by health insurance	96.1	95.7	96.7	-1.0	0.45
Total number of enrollees	**798**	**450**	**348**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment of medical practices. We clustered standard errors at the practice level. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Exhibit A.19. Vermont RETAIN: Baseline characteristics of early follow-up survey respondents, by random assignment group (percentage unless otherwise noted)

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Demographic characteristics					
Sex					
Female	64.9	60.6	70.5	-9.9***	0.00
Age					**0.12**
18–29	17.7	18.9	16.0	2.9	
30–39	24.2	27.6	19.9	7.7	
40–44	13.3	12.1	15.0	-2.9	
45–49	11.5	11.7	11.2	0.4	
50–54	10.4	8.4	12.9	-4.4	
55–59	10.1	10.2	10.0	0.2	
60 and older	12.8	11.1	15.0	-3.9	
Average (years)	43.2	42.2	44.6	-2.4**	0.03
Race and ethnicity					**0.99**
Hispanic	3.5	3.8	3.1	0.6	
White, non-Hispanic	87.9	88.0	87.8	0.1	
Black, non-Hispanic	1.5	1.7	1.4	0.3	
Asian, non-Hispanic	s	s	s	s	
More than one race	3.2	3.1	3.3	-0.2	
Other, non-Hispanic	s	s	s	s	
Missing	2.7	2.4	3.0	-0.7	
Preferred language				†††	**0.01**
English	99.9	99.7	100.0	-0.3	
Spanish	s	s	s	s	
Other	s	s	s	s	
Education					**0.48**
Less than a high school diploma	3.3	3.6	2.9	0.7	
High school diploma, GED, or certificate of completion	31.7	31.7	31.7	-0.1	
Occupational certificate, license, or two-year college degree	18.0	15.9	20.7	-4.8	
Four-year college or postgraduate degree	47.1	48.9	44.7	4.2	
Injury or illness characteristics					
Type of illness					**0.79**
Musculoskeletal, back	9.1	8.5	9.9	-1.4	
Musculoskeletal, non-back	22.9	22.2	23.6	-1.4	
Mental	41.6	43.6	38.9	4.7	
Other	24.4	23.9	25.0	-1.1	
Missing	2.1	1.7	2.5	-0.8	

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
New injury or illness	18.7	17.6	20.1	-2.5	0.39
Injury or result of an accident	19.7	20.8	18.3	2.4	0.44
Work-related injury or illness	24.3	23.2	25.7	-2.4	0.49
Injury or illness as part of a workers' compensation claim	6.3	6.1	6.4	-0.3	0.87
Time between injury or illness and enrollment					
Total days	395	397	392	4	0.96
Enrolled before onset of injury or illness	s	s	s	s	s
Missing	1.5	1.1	2.1	-1.0	0.30
Recent work history					
Employment status at enrollment[a]					**0.84**
Not employed	24.4	23.9	25.1	-1.2	
Self-employed	10.7	11.2	10.0	1.2	
Employed	64.9	64.9	64.9	0.0	
Time since last worked at enrollment[a]					**0.11**
Working at enrollment	39.7	40.7	38.4	2.3	
Last worked less than one week before	23.8	21.9	26.2	-4.2	
Last worked one to four weeks before	10.1	12.4	7.2	5.2	
Last worked one to three months before	12.1	11.4	12.9	-1.5	
Last worked more than three months before	14.3	13.5	15.3	-1.7	
Hours per week usually worked before injury or illness	38.4	38.1	38.9	-0.9	0.27
Tenure at most recent job					**0.28**
Less than six months	24.8	26.6	22.5	4.1	
Six months to one year	14.6	14.3	15.0	-0.7	
One to two years	16.4	18.2	14.2	4.0	
Two to five years	18.0	17.9	18.1	-0.3	
More than five years	26.2	23.1	30.2	-7.1	
Occupational classification of pre-injury or pre-illness job				†	**0.08**
Management, professional, or related	45.9	45.6	46.2	-0.7	
Service	27.3	29.5	24.4	5.1	
Sales and office	10.1	8.1	12.6	-4.5	
Natural resources, construction, or maintenance	7.6	8.3	6.7	1.7	
Production, transportation, or material moving	7.6	7.4	8.0	-0.6	
Missing	1.5	1.1	2.1	-1.0	
Economic well-being					
Earnings in the quarter before the quarter they enrolled ($)	6,521	6,641	6,367	274	0.74
Earned $1,000 or more in one of the past 12 months	78.3	77.8	78.9	-1.1	0.74

Variable	All (A)	Treatment group (B)	Control group (C)	Difference (B–C)	*p*-value
Receipt of income other than earnings					
Social Security disability (SSDI or SSI)	s	s	s	s	s
Veterans benefits	1.7	2.3	1.0	1.2	0.36
Workers' compensation	2.5	2.8	2.1	0.7	0.52
Employer-provided or other private disability insurance	2.6	2.1	3.3	-1.2	0.27
Other public programs	11.2	11.0	11.4	-0.4	0.90
Applied for or received SSDI or SSI in the past three years	6.7	7.3	5.9	1.4	0.46
Covered by health insurance	96.2	95.6	96.9	-1.4	0.33
Total number of enrollees	**676**	**380**	**296**		

Source: RETAIN enrollment data.

Note: We adjusted the treatment and control group means for the factors based on which we stratified random assignment of medical practices. We clustered standard errors at the practice level. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test. The *p*-value for a multinomial categorical variable, which we present in the row for the variable label, is based on a *F*-test of joint significance across all categories.

*/**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using a two-tailed *t*-test.

†/††/††† Difference is significantly different from zero (*p*-value is less than .10/.05/.01) using an *F*-test.

s = cell suppressed because it represents (or enables logical inference of the value of a cell that represents) fewer than three people; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

C. Outcome measures

In the sections below, we describe the outcome measures we examined in (1) the early impact analyses and (2) the descriptive analyses of treatment enrollees. We have organized the outcome descriptions by domains or topic areas. The data source for all measures is the early follow-up survey of enrollees.

1. Outcome measures for impact analysis

For the early impact analysis, we examined outcomes in three domains: (1) use of services and training, (2) labor force attachment and employment, and (3) health. This section describes how we constructed the outcomes examined in the early impact analysis.

a. Use of services and training since enrollment in RETAIN

- **Types of services used since enrollment:** This series of binary measures indicates whether the enrollee used each of the following services and trainings during the two months before the survey:
  - Worked with a care or service coordinator. We defined the coordinator as someone who helped people with support services after injury or illness, and who might coordinate medical services, work with employers/supervisors to develop alternative job duties, or help people find temporary employment.
  - Talked with healthcare providers about how injury or illness affects the ability to work. The providers included the respondent's doctor or other healthcare providers.
  - Used employment-related support services. We defined these services as consisting of help searching for work, referrals to jobs or employers, help with a resume, information on how to change careers, and information on education or job training programs.
  - Participated in job-related training. We defined trainings as having lasted at least one week and designed to help find a job, improve job skills, or learn a new job.
- **Enrolled in school or taking any classes:** This binary measure indicates whether the enrollee was in school or taking any classes at the time of the survey.

b. Labor force attachment and employment at the time of the survey

- **Connected to an employer:** This binary measure indicates whether the enrollee was working at or on leave from a job at the time of the survey. We defined this connection as being employed at a job, organization, or business for pay or profit; it also included working for a business that the respondent might own.
- **Connected to an employer or looking for work:** This binary measure indicates whether the enrollee was connected to an employer (working or on leave from a job) at the time of the survey or was not connected to an employer but had been looking for work during the two months before the survey. Looking for work includes looking for a paid full-time or part-time job. If the enrollee was not connected to an employer and had missing information about looking for work, we used multiple imputation to fill the missing information when constructing this measure.
- **Working:** This binary measure indicates whether the enrollee was working at a job at the time of the survey. It did not include enrollees who were on leave.

- **Working or engaged in occasional activities or side jobs:** This binary measure indicates whether the enrollee was working at a job or engaged in occasional online or in-person work activities or side jobs (such as babysitting, yard work, selling goods online, driving using a ride-sharing app) at the time of the survey.
- **Not working but planning to return to work in the next 90 days:** This binary measure indicates whether the enrollee was not working at a job but planning to return to work in 90 days at the time of the survey. If the enrollee was not working at a job and had missing information about planning to return to work in 90 days, we used multiple imputation to fill the missing information when constructing this measure.
- **Usual hours worked:** This continuous measure shows enrollee's average hours worked per week at their main job at the time of the survey. We asked about the typical hours and provided ranges if the enrollee could not respond. If the enrollee was working at a job and had missing information on hours worked, we used multiple imputation to fill the missing work hours information when constructing this measure. We removed extreme outliers and winsorized the distribution of this measure. [8]
- **Average weekly pay:** This continuous measure shows the enrollee's average weekly pay at their main job at the time of the survey. We asked how much the enrollee typically earned before taxes or other deductions, including tips and bonuses. If the enrollee was working at a job and had missing information on average weekly pay, we used multiple imputation to fill the missing average weekly pay information when constructing this measure. We used the Consumer Price Index for Urban Wage Earners to convert average weekly earnings into constant 2023 dollars.[9] We removed extreme outliers and winsorized the distribution of this measure.
- **Working for an employer that offered health insurance:** This binary measure indicates whether the enrollee was working at the time of the survey and their employer offered health insurance. Enrollees had the option of selecting "Not applicable - Self-employed" in response to the survey question; in such cases, we counted them as not working for an employer that offered health insurance. If the enrollee was working at a job and had missing information on whether the employer offered health insurance, we used multiple imputation to fill the missing information when constructing this measure.

[8] Winsorizing involves removing or transforming extreme values in a data distribution to reduce the effect of possibly spurious outliers. We took the following steps by RETAIN program. First, we calculated the measure's 99th percentile, excluding zeroes and outlier values (values more than three times the inter-quartile range above the 75th percentile of non-zero values). We then top-coded values above the 99th percentile of the program-specific distribution of non-zero and non-outlier values at the 99th percentile of the program-specific distribution of non-zero and non-outlier values.

[9] We also inflation-adjusted and winsorized earnings in the quarter before enrollment, which is a core covariate in our models.

- **Working for an employer that offered paid leave:** This binary measure indicates whether the enrollee was working at the time of the survey and their employer offered paid leave. Enrollees had the option of selecting "Not applicable - Self-employed" in response to the survey question; in such cases, we counted them as not working for an employer that offered them paid leave. If the enrollee was working at a job and had missing information on whether the employer offered paid leave, we used multiple imputation to fill the missing information when constructing this measure.
- **Working and received advice about modifying a job or workplace:** This binary measure indicates whether the enrollee was working at a job and had received any advice about modifying their job or workplace from the employer or other organizations during the two months before the survey. If the enrollee was working at a job and had missing information on whether they had received advice about modifying their job or workspace, we used multiple imputation to fill the missing information when constructing this measure.
- **Working and employer offered the chance to return to work with needed accommodations:** This binary measure indicates whether the enrollee was working at a job in which the employer offered the chance to return to work with accommodations after their injury or illness. Accommodations included a shorter work week, a change in job duties, and changes to the workspace. Enrollees had the option of selecting "Not applicable - Self-employed" in response to the survey question; in such cases, we counted them as not working for an employer that offered the chance to return to work with accommodations. If the enrollee was working at a job and had missing information about whether they were offered the chance to return to work with accommodations, we used multiple imputation to fill the missing information when constructing this measure.

c. Health at the time of the survey

- **Self-reported health is good, great, or excellent:** This binary measure indicates whether the enrollee rated their health as good, great, or excellent at the time of the survey.
- **Covered by health insurance:** This binary measure indicates whether the enrollee had health insurance at the time of the survey.
- **Number of poor physical health days in past month:** This measure indicates the number of days the enrollee perceived their physical health to be not good during the 30 days before the survey.
- **Number of poor mental health days in past month:** This measure indicates the number of days the enrollee perceived their mental health to be not good during the 30 days before the survey.
- **Pain score (range: 0 to 10):** This measure indicates how the enrollee rated their pain on average in the seven days before the survey, with 0 being no pain and 10 being the worst imaginable pain.
- **Pain interfered with work most or all the time:** This binary measure indicates whether the enrollee perceived that pain interfered with their normal work (outside of the home or housework) most or all of the time during the two months before the survey.
- **Was prescribed opioid pain relievers:** This binary measure indicates whether a doctor or health professional prescribed opioid pain relievers to the enrollee during the two months before the survey.

2. Outcome measures for descriptive analysis

This section describes how we constructed each measure used in the descriptive analysis of treatment enrollees. These selected outcomes were relevant only for a subgroup of enrollees defined by a characteristic that was determined after random assignment. It was not appropriate to estimate impacts on such outcomes because the program could have affected whether or not an enrollee belonged to this subgroup; therefore, we only examined these outcomes using descriptive analysis methods.

a. Short-term perceptions and experiences

- **Reasons for not working (among enrollees who were on medical leave):** This series of binary measures indicates whether an enrollee mentioned the following as reasons they were on medical leave at the time of the survey:
  - Worried illness or injury would get worse if they returned to work
  - Injury or illness was too severe
  - Doctor did not think they were ready to work
  - Could not get help when needed with activities of daily living
  - Employer would not provide needed support, accommodation, or flexibility
  - Had no means of getting to work
  - Other reason
- **Reasons for not working (among enrollees who were not working and not on medical leave):** This series of binary measures indicates whether an enrollee mentioned the following as reasons they were not working at the time of the survey:
  - Worried illness or injury would get worse if they returned to work
  - Injury or illness was too severe
  - Doctor did not want them to work
  - Could not get help when needed with activities of daily living
  - Employer would not provide needed support, accommodation, or flexibility
  - Was in school or training program
  - No work available/laid off
  - Was fired or terminated from job
  - Other reason
- **Types of accommodations offered by employers (among enrollees who were working):** This series of binary measures indicates whether an employer offered any of the following accommodations to an enrollee who was working at the time of the survey. If the enrollee indicated the accommodation was not needed, we coded their response as missing. Self-employed enrollees selected "does not apply" for this question, and we coded their responses as missing.

  - Reduced work hours or shorter work week
  - A telecommuting arrangement
  - Additional breaks from work
  - A change in job duties
  - Changes to workspace equipment or work location or environment
  - Other temporary change
  - No accommodation

- **Perceived usefulness of services that care or service coordinator provided (among enrollees who worked with these providers):** This categorical measure indicates whether an enrollee perceived the services that a care or service coordinator provided as very, somewhat, not very, or not at all useful.
- **Perceived helpfulness of provider services (among enrollees who talked with healthcare providers about how injury or illness affected ability to work):** This categorical measure indicates whether an enrollee perceived the services that a doctor or healthcare provider provided as extremely, somewhat, not very, or not at all helpful.

D. Estimation methods

As proposed in the evaluation design report (Berk et al. 2021), we examined each of the five RETAIN programs separately. The rationale for this approach is that even though all five programs broadly followed the same RETAIN program model, they varied substantially in their implementation of the model components. However, we took a common analysis approach to studying each program. In the sections below, we describe the methods we used for the impact analysis, the subgroup impact analysis, and the descriptive analysis.

1. Impact analysis methods

Random assignment should result in research groups that are, on average, similar in their characteristics at the time they enrolled in the evaluation. Therefore, a simple comparison of mean values of outcomes between the treatment and control groups should provide an unbiased estimate of program impacts. As described in Section B, baseline balance tests indicate that random assignment worked as intended in each RETAIN program. Accordingly, a simple comparison of the enrollee outcomes would provide an unbiased estimate of the impacts, on average.

To improve the statistical precision of the impact estimates and account for chance differences in baseline characteristics between treatment and control group members in each program, we computed regression-adjusted impact estimates using multivariate regression models. In all tables showing results from the impact analyses, the means for the treatment group reflect regression-adjusted means. The approach we used to implement covariate adjustment is as follows (Exhibit A.20):

- For all programs, we included a core set of covariates.
- For all programs, we included the characteristics based on which we had stratified random assignment, so as to reflect the program's study design.
- For each program, we included additional covariates if we found any statistically significant differences in baseline characteristics between the treatment and control groups in the analysis sample.[10]

Exhibit A.20. Covariates used in regression-adjusted analyses of impacts, by program

Program	Control variables
All programs	*Core covariates* • Enrollee's age (7 categories) • Whether the enrollee was female • Enrollee's race and ethnicity (7 categories) • Enrollee's earnings in the quarter before enrollment • Enrollee's employment status at enrollment (3 categories) • Time since enrollee last worked (5 categories) • Type of injury or illness (5 categories)
RETAINWOR*KS*	*Random assignment strata* • Enrollee's age* (7 categories) • Whether the enrollee was female* • Enrollee's employment status at enrollment* (3 categories) • Time since enrollee last worked* (5 categories) • Enrollee's workforce region (5 categories) *Imbalanced characteristics* • Whether the enrollee was covered by health insurance • Occupational classification of enrollee's pre-injury or pre-illness job (6 categories)
RETAIN Kentucky	*Random assignment strata* • Enrollee's age* (7 categories) • Whether the enrollee was female* • Enrollee's employment status at enrollment* (3 categories) • Time since enrollee last worked* (5 categories) *Imbalanced characteristics* • Enrollee's education (4 categories) • Whether injury or illness part of a workers' compensation claim

[10] We tested for balance on the following baseline characteristics: sex, age, race and ethnicity, preferred language, education, type of illness, new injury or illness, injury or result of an accident, work-related injury or illness, injury or illness as part of a workers' compensation claim, time between injury or illness and enrollment (days), time between injury or illness and enrollment missing, enrolled before onset of injury or illness, employment status at enrollment, time since last worked at enrollment, hours per week usually worked before injury or illness, tenure at most recent job, occupational classification of pre-injury or pre-illness job, earnings in the quarter before the enrollment quarter, earned $1,000 or more in one of the past 12 months, receipt of income other than earnings, applied for or received SSDI or SSI in the past three years, and covered by health insurance.

Program	Control variables
Minnesota RETAIN	*Random assignment strata* • Enrollee's age* (7 categories) • Whether enrollee was female* • Enrollee's employment status* (3 categories) • Time since enrollee last worked* (5 categories)
Ohio RETAIN	*Random assignment strata* • Enrollee's age* (7 categories) • Whether enrollee was female* • Enrollee's employment status* (3 categories) • Time since enrollee last worked* (5 categories) *Imbalanced characteristics* • Enrollee's preferred language • Whether enrollee applied for or received SSDI or SSI in the past three years • Time between enrollee's injury or illness and enrollment (days)
Vermont RETAIN	*Random assignment strata* • Practice sizes (7 categories) *Imbalanced characteristics* • Whether enrollee was female* • Occupational classification of enrollee's pre-injury or pre-illness job (6 categories)

Note: The imbalanced characteristics include only characteristics that did not overlap with core covariates.

* Already included as a core covariate; listed here for completeness.

To estimate impacts, we estimated a regression model of the following form for each program:

$$Y_i = \alpha + \beta Treatment_i + \lambda X_i + \epsilon_i$$

where i denotes the individual observation, $Treatment_i$ denotes the indicator for assignment to the treatment group, X_i denotes the vector of covariates (strata, core, and imbalanced covariates), and ϵ_i denotes the error term. The coefficient β is the parameter of primary interest because it represents the estimate of the program impact. We estimated this model using linear regression methods.

We used different methods to estimate standard errors, depending on the random assignment level. For programs with individual-level random assignment, we produced heteroskedasticity-consistent standard errors using the method proposed by White (1980). For the program that used clustered random assignment (VT RETAIN), we clustered standard errors at the medical practice level. This adjustment accounted for the fact that outcomes for individuals in the same medical practice might be correlated.

When examining survey-based outcomes, we specified probability weights to account for survey nonresponse. For survey-based outcomes constructed using multiple imputation (see Section A.2.c above), we used Stata's "mi" commands to estimate impacts.

We used two-sided *t*-tests and a *p*-value threshold of 0.10 to determine whether an estimated program impact was statistically different from zero. To calculate effect sizes for continuous outcome measures, we reported the standardized mean difference, known as Hedges' g, estimated by dividing the estimated impact by the pooled standard deviation of the outcome measure. For binary outcome measures, we first

calculated the log odds ratio from the estimated mean and then calculated effect sizes by dividing the log odds ratio by 1.65, thus providing a statistic that reflected the difference in the probability of the occurrence of an event between the two groups (Cox 1970; What Works Clearinghouse 2022).

2. Subgroup impact analysis methods

To understand whether engagement with and take-up of RETAIN services varied across demographic groups, we estimated impacts on the use of services and training since enrollment for key subgroups of enrollees. To minimize the risk of drawing spurious conclusions due to multiple comparisons, we analyzed only a selected set of subgroups defined by the baseline characteristics of enrollees: age at enrollment (younger than 50; 50 and older), primary diagnosis (musculoskeletal injuries; non-musculoskeletal injuries), and sex (female; male).

To estimate each set of subgroup impacts, we modified the regression models to include an indicator for each subgroup, as well as interaction terms between the treatment status indicator and the indicator variable for each subgroup. We estimated a regression model of the following form for each program:

$$Y_i = \alpha + \beta Treatment_i + \gamma Subgroup_i + \theta Treatment_i \cdot Subgroup_i + \lambda X_i + \epsilon_i$$

where i denotes the individual observation, $Treatment_i$ denotes the indicator for assignment to the treatment group, and ϵ_i denotes the error term. $Subgroup_i$ represents the subgroup indicator, and X_i denotes the vector of covariates excluding the subgroup characteristic (strata, core, and imbalanced covariates). The sum of the coefficients θ and β represents the average program impact for individuals in the subgroup of interest, while β is the impact estimate for the remaining individuals. For example, when estimating impacts by age group, $\beta + \theta$ is the average impact of RETAIN on enrollees ages 50 and older, while β is the average impact on enrollees younger than 50. We estimated this model using linear regression methods.

We use two-sided *t*-tests and a *p*-value threshold of 0.10 to determine the statistical significance of the regression-adjusted impact estimate for each subgroup. We also conducted a joint Wald test and a *p*-value threshold of 0.10 to determine whether the differences in the impact estimates between the subgroups were statistically significant. Because we are interested in understanding the variation of program impacts, we discussed subgroup findings when we found statistically significant differences in a program's impacts across subgroups, regardless of the impacts for each individual subgroup.

3. Descriptive analysis methods

For a small number of outcomes, we conducted a descriptive analysis of data limited to treatment enrollees. For each program, we applied survey nonresponse weights to the data and then estimated the mean and standard deviation of each outcome while reporting the sample size of treatment enrollees.

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Appendix B

Analysis Results

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Below, we present the results of the early impact analysis for the five RETAIN programs. For each program, we present the results of the main impact analysis, descriptive analysis of enrollees' experiences and perspectives, and impact analysis for subgroups defined by age, sex and type of primary diagnosis.

A. Results from early impact and outcome analyses

1. RETAINWOR*KS*

Exhibit B.1.1. RETAINWOR*KS*: Early impacts on enrollees' service use, employment, and health (percentage unless otherwise noted)

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Use of services and training in the past 2 months							
Worked with a care or service coordinator	7.2	33.7***	0.00	2.7	1.326	441	385
Talked with healthcare providers about how their injury or illness affects their ability to work	67.9	5.9*	0.07	3.2	0.175	443	385
Used any employment-related support services	9.9	21.9***	0.00	2.7	0.879	443	387
Participated in any job-related training	4.8	3.7**	0.03	1.7	0.369	444	386
Currently enrolled in school or taking any classes	8.4	2.7	0.18	2.0	0.188	443	386
Labor force attachment and employment at the time of the survey							
Labor force attachment							
Connected to an employer	75.5	1.1	0.67	2.6	0.037	445	389
Connected to an employer or looking for work	87.6	5.4***	0.01	2.1	0.385	445	389
Working	61.3	4.0	0.20	3.1	0.104	445	389
Working or engaged in occasional activities or side jobs	67.8	2.6	0.38	3.0	0.074	445	388
Not working but planning to return to work in the next 90 days	26.7	-0.8	0.80	3.0	-0.024	445	389
Employment characteristics							
Usual hours worked per week	22.9	1.2	0.33	1.2	0.061	445	389
Average weekly pay ($)	504	23	0.48	33	0.044	445	389
Working for an employer that offers health insurance	47.9	3.8	0.23	3.1	0.091	445	389
Working for an employer that offers paid leave	47.4	4.2	0.18	3.1	0.101	445	389

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Working and received advice about modifying job or workplace	13.8	14.7***	0.00	2.8	0.552	445	389
Working and employer offered the chance to return to work with needed accommodations	35.6	5.5*	0.08	3.2	0.142	445	389
Health and functioning at the time of the survey							
Self-reported health is good, great, or excellent	19.9	2.4	0.39	2.8	0.088	443	386
Covered by health insurance	86.4	0.1	0.95	2.0	0.007	440	386
Number of poor physical health days in past month	14.5	-1.4*	0.09	0.8	-0.118	438	380
Number of poor mental health days in past month	13.1	-1.1	0.15	0.8	-0.096	442	385
Pain score (range: 0 to 10)	4.7	-0.2	0.25	0.2	-0.077	440	384
Pain interfered with work most or all the time	58.3	-6.1*	0.08	3.5	-0.149	443	386
Was prescribed opioid pain relievers	39.5	-12.3***	0.00	3.3	-0.340	441	386

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAINWOR*KS*'s impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies by outcomes because of item nonresponse. The response rate for the early follow-up survey for RETAINWOR*KS* was 86.6 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

s = cell suppressed because it represents fewer than three people.

Exhibit B.1.2. RETAINWOR*KS*: Treatment enrollees' perceptions and experiences

Perception or experience	Mean	Standard deviation	Sample size
Among enrollees who are on medical leave, reasons for being on leave			
Worried illness or injury will get worse if they return to work	80.3	40.0	106
Injury or illness is too severe	80.1	40.1	105
Doctor does not think they are ready to work	83.0	37.7	106
Cannot get help when needed with activities of daily living	16.5	37.3	105
Employer will not provide necessary supports, accommodations, or flexibility	40.7	49.4	101
No means of getting to work	15.4	36.3	105
Other reason	27.2	44.7	102
Missing	0.0	0.0	106
Among enrollees who are not working, reasons for not working			
Worried illness or injury will get worse if they return to work	63.9	48.2	194
Injury or illness is too severe	60.2	49.1	193
Doctor does not want them to work	31.9	46.7	194
Cannot get help when needed with activities of daily living	6.7	25.0	194
Employer will not provide necessary supports, accommodations, or flexibility	30.6	46.2	192
In school or training program	7.8	26.9	194
No work available or laid off	20.4	40.4	192
Fired or terminated from job	32.9	47.1	192
Other reason	19.7	39.9	193
Missing	s	s	s
Among enrollees who are working, type of accommodation offered by employer			
Reduced work hours or work week	33.3	47.2	405
A telecommuting arrangement	19.4	39.6	393
Additional breaks	34.8	47.7	422
A change in job duties	39.7	49.0	408
Changes to work space equipment, work location, or work environment	41.1	49.3	400

Perception or experience	Mean	Standard deviation	Sample size
Other temporary change	1.8	13.2	393
No accommodation	27.3	44.6	444
Missing	0.0	0.0	470
Among enrollees who worked with a care or service coordinator in the past two months, perceived usefulness of services provided			
Very useful	54.4	49.9	208
Somewhat useful	36.6	48.3	208
Not very useful	s	s	s
Not at all useful	s	s	s
Missing	0.0	0.0	208
Among enrollees who talked with healthcare providers in the past two months about how their injury or illness affects their ability to work, perceived helpfulness of provider services			
Extremely helpful	45.7	49.9	589
Somewhat helpful	38.3	48.7	589
Not very helpful	11.6	32.0	589
Not at all helpful	s	s	s
Missing	s	s	s

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the mean, standard deviation, and sample size for each outcome among all treatment group enrollees.

s = cell suppressed because it represents fewer than three people.

Exhibit B.1.3. RETAINWOR*KS*: Early impacts on enrollees' service use, by age (percentage unless otherwise noted)

Outcome measure	Younger than 50					50 and older					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	6.7	33.0***	0.00	290	248	8.2	34.8***	0.00	151	137	0.75
Talked with healthcare providers about how injury or illness affects ability to work	70.2	3.5	0.31	291	248	63.2	11.1**	0.02	152	137	0.26
Used any employment-related support services	8.1	24.0***	0.00	291	249	13.2	17.8***	0.00	152	138	0.27
Participated in any job-related training	4.5	4.7**	0.01	292	249	5.2	2.0	0.41	152	137	0.46
Currently enrolled in school or taking any classes	11.0	1.9	0.45	291	249	3.5	3.9*	0.08	152	137	0.59

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAINWOR*KS*'s impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAINWOR*KS* was 86.6 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.1.4. RETAINWOR*KS*: Early impacts on enrollees' service use, by sex (percentage unless otherwise noted)

Outcome measure	Female					Male					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	5.5	40.9***	0.00	267	254	10.9	21.2***	0.00	174	131	0.00†††
Talked with healthcare providers about how injury or illness affects ability to work	70.0	2.1	0.54	267	253	63.8	12.5***	0.01	176	132	0.12
Used any employment-related support services	10.6	23.3***	0.00	268	255	8.8	19.6***	0.00	175	132	0.50
Participated in any job-related training	4.5	2.3	0.23	268	254	5.0	6.1**	0.02	176	132	0.30
Currently enrolled in school or taking any classes	11.2	0.6	0.81	267	254	3.4	6.3***	0.01	176	132	0.15

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAINWOR*KS*'s impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAINWOR*KS* was 86.6 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.1.5. RETAINWOR*KS*: Early impacts on enrollees' service use, by primary diagnosis (percentage unless otherwise noted)

Outcome measure	Musculoskeletal injuries					Non-musculoskeletal injuries					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	6.9	30.8***	0.00	290	269	7.4	39.6***	0.00	151	116	0.14
Talked with healthcare providers about how injury or illness affects ability to work	68.4	6.6**	0.05	292	269	66.8	4.6	0.36	151	116	0.77
Used any employment-related support services	10.6	17.1***	0.00	292	271	7.6	32.3***	0.00	151	116	0.01†††
Participated in any job-related training	4.8	2.1	0.22	292	270	4.6	6.9**	0.02	152	116	0.21
Currently enrolled in school or taking any classes	8.4	2.1	0.32	292	270	8.2	3.9	0.22	151	116	0.68

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAINWOR*KS*'s impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAINWOR*KS* was 86.6 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

2. RETAIN Kentucky

Exhibit B.2.1. RETAIN Kentucky: Early impacts on enrollees' service use, employment, and health (percentage unless otherwise noted)

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Use of services and training in the past 2 months							
Worked with a care or service coordinator	16.9	12.4***	0.00	1.7	0.431	1,312	1,230
Talked with healthcare providers about how their injury or illness affects their ability to work	58.8	1.0	0.60	1.9	0.025	1,317	1,230
Used any employment-related support services	20.8	10.7***	0.00	1.7	0.340	1,316	1,230
Participated in any job-related training	12.9	-0.5	0.69	1.3	-0.029	1,316	1,230
Currently enrolled in school or taking any classes	16.6	-0.7	0.62	1.4	-0.032	1,319	1,230
Labor force attachment and employment at the time of the survey							
Labor force attachment							
Connected to an employer	67.6	-1.0	0.55	1.6	-0.026	1,322	1,239
Connected to an employer or looking for work	92.0	-1.4	0.21	1.1	-0.107	1,322	1,239
Working	60.4	0.7	0.69	1.7	0.017	1,322	1,239
Working or engaged in occasional activities or side jobs	68.2	0.9	0.58	1.7	0.026	1,319	1,233
Not working but planning to return to work in the next 90 days	30.2	-1.0	0.55	1.7	-0.030	1,322	1,239
Employment characteristics							
Usual hours worked per week	20.9	0.5	0.41	0.7	0.029	1,322	1,239
Average weekly pay ($)	425	12	0.50	17	0.023	1,322	1,239
Working for an employer that offers health insurance	38.2	2.2	0.22	1.8	0.056	1,322	1,239
Working for an employer that offers paid leave	38.3	1.7	0.33	1.7	0.043	1,322	1,239
Working and received advice about modifying job or workplace	17.3	4.1***	0.01	1.5	0.160	1,322	1,239
Working and employer offered the chance to return to work with needed accommodations	30.6	-0.8	0.64	1.7	-0.023	1,322	1,239

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Health and functioning at the time of the survey							
Self-reported health is good, great, or excellent	19.6	-0.2	0.88	1.6	-0.009	1,319	1,231
Covered by health insurance	93.8	-0.1	0.93	1.0	-0.008	1,317	1,230
Number of poor physical health days in past month	11.6	0.2	0.67	0.4	0.016	1,308	1,225
Number of poor mental health days in past month	13.0	0.2	0.69	0.4	0.015	1,313	1,223
Pain score (range: 0 to 10)	4.5	-0.1	0.43	0.1	-0.030	1,306	1,221
Pain interfered with work most or all the time	47.2	-1.8	0.33	1.9	-0.045	1,314	1,228
Was prescribed opioid pain relievers	16.6	-1.8	0.20	1.4	-0.084	1,309	1,228

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAIN Kentucky's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies by outcomes because of item nonresponse. The response rate for the early follow-up survey for RETAIN Kentucky was 81.3 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

s = cell suppressed because it represents fewer than three people.

Exhibit B.2.2. RETAIN Kentucky: Treatment enrollees' perceptions and experiences

Perception or experience	Mean	Standard deviation	Sample size
Among enrollees who are on medical leave, reasons for being on leave			
Worried illness or injury will get worse if they return to work	61.1	48.9	163
Injury or illness is too severe	73.3	44.4	158
Doctor does not think they are ready to work	80.0	40.1	161
Cannot get help when needed with activities of daily living	16.7	37.4	162
Employer will not provide necessary supports, accommodations, or flexibility	29.9	45.9	156
No means of getting to work	22.5	41.9	162
Other reason	23.9	42.8	160
Missing	s	s	s
Among enrollees who are not working, reasons for not working			
Worried illness or injury will get worse if they return to work	55.9	49.7	803
Injury or illness is too severe	47.0	49.9	801
Doctor does not want them to work	22.7	41.9	799
Cannot get help when needed with activities of daily living	6.7	25.0	811
Employer will not provide necessary supports, accommodations, or flexibility	25.6	43.7	795
In school or training program	14.6	35.3	808
No work available or laid off	27.5	44.7	807
Fired or terminated from job	29.3	45.5	808
Other reason	26.4	44.1	807
Missing	s	s	s
Among enrollees who are working, type of accommodation offered by employer			
Reduced work hours or work week	28.8	45.3	1,100
A telecommuting arrangement	21.0	40.8	1,109
Additional breaks	33.2	47.1	1,133
A change in job duties	25.8	43.8	1,113
Changes to work space equipment, work location, or work environment	33.2	47.1	1,127
Other temporary change	2.1	14.4	1,114

Perception or experience	Mean	Standard deviation	Sample size
No accommodation	34.0	47.4	1,174
Missing	0.0	0.0	1,319
Among enrollees who worked with a care or service coordinator in the past two months, perceived usefulness of services provided			
Very useful	47.2	50.0	591
Somewhat useful	41.7	49.3	591
Not very useful	5.9	23.6	591
Not at all useful	4.4	20.5	591
Missing	0.8	9.2	591
Among enrollees who talked with healthcare providers in the past two months about how their injury or illness affects their ability to work, perceived helpfulness of provider services			
Extremely helpful	40.8	49.2	1,525
Somewhat helpful	38.2	48.6	1,525
Not very helpful	15.2	35.9	1,525
Not at all helpful	5.6	23.0	1,525
Missing	0.3	5.1	1,525

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the mean, standard deviation, and sample size for each outcome among all treatment group enrollees.

s = cell suppressed because it represents fewer than three people.

Exhibit B.2.3. RETAIN Kentucky: Early impacts on enrollees' service use, by age (percentage unless otherwise noted)

Outcome measure	Younger than 50					50 and older					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	16.6	13.2***	0.00	906	876	17.5	10.5***	0.00	406	354	0.46
Talked with healthcare providers about how injury or illness affects ability to work	58.4	0.4	0.82	908	875	59.5	2.4	0.39	409	355	0.63
Used any employment-related support services	19.6	12.9***	0.00	907	877	24.0	5.0**	0.05	409	353	0.03††
Participated in any job-related training	14.0	-0.1	0.95	907	877	10.4	-1.7	0.31	409	353	0.55
Currently enrolled in school or taking any classes	19.7	-0.4	0.81	910	876	8.8	-1.7	0.24	409	354	0.61

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAIN Kentucky's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAIN Kentucky was 81.3 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.2.4. RETAIN Kentucky: Early impacts on enrollees' service use, by sex (percentage unless otherwise noted)

Outcome measure	Female					Male					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	17.5	13.8***	0.00	831	792	15.9	9.9***	0.00	481	438	0.25
Talked with healthcare providers about how injury or illness affects ability to work	59.4	4.0**	0.04	835	792	57.8	-4.0	0.13	482	438	0.05††
Used any employment-related support services	20.8	13.0***	0.00	834	790	20.7	6.9***	0.00	482	440	0.09†
Participated in any job-related training	12.0	-0.4	0.75	833	791	14.5	-0.7	0.69	483	439	0.91
Currently enrolled in school or taking any classes	18.1	0.0	0.99	836	791	14.1	-1.9	0.28	483	439	0.50

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAIN Kentucky's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAIN Kentucky was 81.3 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.2.5. RETAIN Kentucky: Early impacts on enrollees' service use, by primary diagnosis (percentage unless otherwise noted)

Outcome measure	Musculoskeletal injuries					Non-musculoskeletal injuries					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	13.3	20.8***	0.00	372	324	18.1	9.3***	0.00	940	906	0.00†††
Talked with healthcare providers about how injury or illness affects ability to work	65.9	-1.6	0.58	372	324	56.3	1.9	0.31	945	906	0.41
Used any employment-related support services	18.7	10.8***	0.00	372	324	21.5	10.7***	0.00	944	906	0.98
Participated in any job-related training	11.4	1.8	0.39	373	324	13.5	-1.4	0.29	943	906	0.29
Currently enrolled in school or taking any classes	15.7	0.9	0.67	373	323	16.9	-1.3	0.36	946	907	0.49

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of RETAIN Kentucky's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for RETAIN Kentucky was 81.3 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

3. Minnesota RETAIN

Exhibit B.3.1. Minnesota RETAIN: Early impacts on enrollees' service use, employment, and health (percentage unless otherwise noted)

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Use of services and training in the past 2 months							
Worked with a care or service coordinator	7.3	31.4***	0.00	1.5	1.260	1,338	1,282
Talked with healthcare providers about how their injury or illness affects their ability to work	71.0	3.6**	0.04	1.7	0.110	1,346	1,281
Used any employment-related support services	11.9	15.4***	0.00	1.5	0.620	1,349	1,280
Participated in any job-related training	5.7	2.4**	0.02	1.0	0.230	1,348	1,282
Currently enrolled in school or taking any classes	8.9	0.1	0.96	1.1	0.004	1,350	1,280
Labor force attachment and employment at the time of the survey							
Labor force attachment							
Connected to an employer	74.2	-1.1	0.46	1.5	-0.034	1,350	1,285
Connected to an employer or looking for work	91.1	0.4	0.71	1.1	0.031	1,350	1,285
Working	60.1	-4.4**	0.01	1.8	-0.109	1,350	1,285
Working or engaged in occasional activities or side jobs	67.6	-3.4*	0.05	1.8	-0.092	1,348	1,283
Not working but planning to return to work in the next 90 days	28.5	5.2***	0.00	1.8	0.148	1,350	1,285
Employment characteristics							
Usual hours worked per week	21.6	-1.8***	0.01	0.7	-0.092	1,350	1,285
Average weekly pay ($)	629	-40	0.13	26	-0.051	1,350	1,285
Working for an employer that offers health insurance	41.6	-3.7**	0.03	1.7	-0.094	1,350	1,285
Working for an employer that offers paid leave	43.3	-3.6**	0.04	1.8	-0.091	1,350	1,285
Working and received advice about modifying job or workplace	15.1	2.6*	0.06	1.4	0.116	1,350	1,285
Working and employer offered the chance to return to work with needed accommodations	35.2	-1.8	0.29	1.8	-0.050	1,350	1,285

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Health and functioning at the time of the survey							
Self-reported health is good, great, or excellent	28.2	0.2	0.91	1.7	0.006	1,348	1,279
Covered by health insurance	94.0	1.5*	0.08	0.9	0.189	1,346	1,274
Number of poor physical health days in past month	13.3	-0.6	0.19	0.4	-0.051	1,343	1,269
Number of poor mental health days in past month	11.8	0.0	0.97	0.4	0.001	1,342	1,272
Pain score (range: 0 to 10)	4.0	0.0	0.62	0.1	-0.019	1,340	1,276
Pain interfered with work most or all the time	48.9	1.6	0.40	1.9	0.039	1,345	1,281
Was prescribed opioid pain relievers	25.0	-0.2	0.92	1.7	-0.005	1,344	1,278

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Minnesota RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies by outcomes because of item nonresponse. The response rate for the early follow-up survey for Minnesota RETAIN was 82.8 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

s = cell suppressed because it represents fewer than three people.

Exhibit B.3.2. Minnesota RETAIN: Treatment enrollees' perceptions and experiences

Perception or experience	Mean	Standard deviation	Sample size
Among enrollees who are on medical leave, reasons for being on leave			
Worried illness or injury will get worse if they return to work	67.0	47.1	421
Injury or illness is too severe	76.2	42.6	421
Doctor does not think they are ready to work	80.6	39.6	420
Cannot get help when needed with activities of daily living	7.6	26.6	423
Employer will not provide necessary supports, accommodations, or flexibility	27.4	44.6	418
No means of getting to work	12.4	33.0	424
Other reason	20.3	40.3	422
Missing	s	s	s
Among enrollees who are not working, reasons for not working			
Worried illness or injury will get worse if they return to work	61.9	48.6	662
Injury or illness is too severe	56.5	49.6	658
Doctor does not want them to work	33.7	47.3	653
Cannot get help when needed with activities of daily living	9.7	29.7	660
Employer will not provide necessary supports, accommodations, or flexibility	28.4	45.1	653
In school or training program	12.7	33.4	662
No work available or laid off	25.9	43.8	661
Fired or terminated from job	31.0	46.3	665
Other reason	24.2	42.9	665
Missing	s	s	s
Among enrollees who are working, type of accommodation offered by employer			
Reduced work hours or work week	43.0	49.5	1,119
A telecommuting arrangement	25.5	43.6	1,085
Additional breaks	38.9	48.8	1,109
A change in job duties	40.1	49.0	1,088
Changes to work space equipment, work location, or work environment	39.6	48.9	1,081
Other temporary change	3.9	19.5	1,053

Perception or experience	Mean	Standard deviation	Sample size
No accommodation	24.7	43.1	1,191
Missing	0.0	0.0	1,301
Among enrollees who worked with a care or service coordinator in the past early follow-ups, perceived usefulness of services provided			
Very useful	42.3	49.4	615
Somewhat useful	43.1	49.6	615
Not very useful	10.0	30.0	615
Not at all useful	s	s	s
Missing	s	s	s
Among enrollees who talked with healthcare providers in the past early follow-ups about how their injury or illness affects their ability to work, perceived helpfulness of provider services			
Extremely helpful	45.3	49.8	1,929
Somewhat helpful	37.8	48.5	1,929
Not very helpful	11.6	32.0	1,929
Not at all helpful	4.8	21.4	1,929
Missing	0.6	7.6	1,929

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the mean, standard deviation, and sample size for each outcome among all treatment group enrollees.

s = cell suppressed because it represents fewer than three people.

Exhibit B.3.3. Minnesota RETAIN: Early impacts on enrollees' service use, by age (percentage unless otherwise noted)

Outcome measure	Younger than 50					50 and older					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	8.2	31.1***	0.00	861	828	5.6	32.1***	0.00	477	454	0.77
Talked with healthcare providers about how injury or illness affects ability to work	69.9	4.0**	0.03	868	826	73.3	2.8	0.22	478	455	0.74
Used any employment-related support services	12.5	14.9***	0.00	870	827	10.6	16.3***	0.00	479	453	0.64
Participated in any job-related training	6.2	1.8*	0.08	868	828	4.7	3.4***	0.01	480	454	0.43
Currently enrolled in school or taking any classes	11.0	-0.4	0.73	870	828	4.7	1.0	0.36	480	452	0.47

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Minnesota RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Minnesota RETAIN was 82.8 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.3.4. Minnesota RETAIN: Early impacts on enrollees' service use, by sex (percentage unless otherwise noted)

Outcome measure	Female					Male[a]					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	6.3	35.4***	0.00	767	722	8.6	26.3***	0.00	571	560	0.00†††
Talked with healthcare providers about how injury or illness affects ability to work	72.6	5.3***	0.00	770	723	69.0	1.4	0.53	576	558	0.27
Used any employment-related support services	13.1	16.3***	0.00	773	720	10.4	14.2***	0.00	576	560	0.50
Participated in any job-related training	6.3	1.2	0.28	771	722	4.8	4.0***	0.00	577	560	0.16
Currently enrolled in school or taking any classes	10.3	0.3	0.83	773	720	7.1	-0.2	0.85	577	560	0.81

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Minnesota RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Minnesota RETAIN was 82.8 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

[a] The male category includes a small number of people who did not select male or female in response to this question.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.3.5. Minnesota RETAIN: Early impacts on enrollees' service use, by primary diagnosis (percentage unless otherwise noted)

Outcome measure	Musculoskeletal injuries					Non-musculoskeletal injuries					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	5.6	33.0***	0.00	815	777	10.0	29.0***	0.00	523	505	0.20
Talked with healthcare providers about how injury or illness affects ability to work	72.1	5.1***	0.00	819	775	69.4	1.2	0.60	527	506	0.27
Used any employment-related support services	11.7	11.1***	0.00	821	774	12.1	22.1***	0.00	528	506	0.00†††
Participated in any job-related training	5.1	2.7***	0.01	821	777	6.6	1.8	0.21	527	505	0.64
Currently enrolled in school or taking any classes	8.7	1.1	0.36	822	775	9.3	-1.6	0.29	528	505	0.25

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Minnesota RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Minnesota RETAIN was 82.8 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

4. Ohio RETAIN

Exhibit B.4.1. Ohio RETAIN: Early impacts on enrollees' service use, employment, and health (percentage unless otherwise noted)

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Use of services and training in the past 2 months							
Worked with a care or service coordinator	4.4	19.0***	0.00	1.1	1.147	1,897	1,869
Talked with healthcare providers about how their injury or illness affects their ability to work	65.7	4.1***	0.01	1.5	0.114	1,907	1,870
Used any employment-related support services	6.7	1.1	0.21	0.9	0.097	1,903	1,866
Participated in any job-related training	4.7	-1.0	0.15	0.7	-0.144	1,910	1,870
Currently enrolled in school or taking any classes	7.4	-0.5	0.52	0.8	-0.050	1,907	1,869
Labor force attachment and employment at the time of the survey							
Labor force attachment							
Connected to an employer	80.5	0.3	0.79	1.1	0.011	1,915	1,871
Connected to an employer or looking for work	90.0	-0.5	0.58	0.9	-0.034	1,915	1,871
Working	64.2	-3.2**	0.02	1.4	-0.084	1,915	1,871
Working or engaged in occasional activities or side jobs	68.3	-4.3***	0.00	1.4	-0.117	1,913	1,868
Not working but planning to return to work in the next 90 days	28.5	3.2**	0.03	1.5	0.092	1,915	1,871
Employment characteristics							
Usual hours worked per week	24.6	-1.6***	0.00	0.6	-0.082	1,915	1,871
Average weekly pay ($)	663	-43**	0.03	20	-0.059	1,915	1,871
Working for an employer that offers health insurance	50.7	-2.4	0.11	1.5	-0.057	1,915	1,871
Working for an employer that offers paid leave	51.0	-2.8*	0.05	1.5	-0.069	1,915	1,871
Working and received advice about modifying job or workplace	11.4	2.1*	0.05	1.1	0.116	1,915	1,871
Working and employer offered the chance to return to work with needed accommodations	34.3	-0.7	0.63	1.5	-0.019	1,915	1,871

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Health and functioning at the time of the survey							
Self-reported health is good, great, or excellent	37.2	0.1	0.94	1.5	0.003	1,907	1,869
Covered by health insurance	96.6	0.0	0.99	0.6	-0.001	1,906	1,867
Number of poor physical health days in past month	11.5	-0.1	0.70	0.4	-0.012	1,884	1,841
Number of poor mental health days in past month	8.5	-0.3	0.30	0.3	-0.033	1,897	1,854
Pain score (range: 0 to 10)	3.7	0.0	0.60	0.1	-0.016	1,900	1,860
Pain interfered with work most or all the time	48.7	0.1	0.94	1.6	0.003	1,901	1,864
Was prescribed opioid pain relievers	40.4	-1.4	0.36	1.6	-0.036	1,898	1,861

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Ohio RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies by outcomes because of item nonresponse. The response rate for the early follow-up survey for Ohio RETAIN was 83.9 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

s = cell suppressed because it represents fewer than three people.

Exhibit B.4.2. Ohio RETAIN: Treatment enrollees' perceptions and experiences

Perception or experience	Mean	Standard deviation	Sample size
Among enrollees who are on medical leave, reasons for being on leave			
Worried illness or injury will get worse if they return to work	63.4	48.2	685
Injury or illness is too severe	68.0	46.7	685
Doctor does not think they are ready to work	85.5	35.3	687
Cannot get help when needed with activities of daily living	9.2	28.9	690
Employer will not provide necessary supports, accommodations, or flexibility	26.2	44.0	683
No means of getting to work	15.2	35.9	688
Other reason	17.4	38.0	689
Missing	0.0	0.0	695
Among enrollees who are not working, reasons for not working			
Worried illness or injury will get worse if they return to work	53.7	49.9	696
Injury or illness is too severe	54.8	49.8	700
Doctor does not want them to work	38.1	48.6	680
Cannot get help when needed with activities of daily living	7.6	26.5	699
Employer will not provide necessary supports, accommodations, or flexibility	22.6	41.9	689
In school or training program	8.2	27.5	698
No work available or laid off	18.4	38.8	693
Fired or terminated from job	18.6	38.9	697
Other reason	22.9	42.1	699
Missing	s	s	s
Among enrollees who are working, type of accommodation offered by employer			
Reduced work hours or work week	31.8	46.6	1,646
A telecommuting arrangement	26.5	44.2	1,683
Additional breaks	34.6	47.6	1,665
A change in job duties	35.2	47.8	1,638
Changes to work space equipment, work location, or work environment	37.4	48.4	1,635
Other temporary change	2.2	14.5	1,590

Perception or experience	Mean	Standard deviation	Sample size
No accommodation	30.3	45.9	1,834
Missing	0.0	0.0	1,989
Among enrollees who worked with a care or service coordinator in the past two months, perceived usefulness of services provided			
Very useful	51.7	50.0	525
Somewhat useful	35.6	47.9	525
Not very useful	8.9	28.5	525
Not at all useful	s	s	s
Missing	s	s	s
Among enrollees who talked with healthcare providers in the past two months about how their injury or illness affects their ability to work, perceived helpfulness of provider services			
Extremely helpful	63.3	48.2	2,563
Somewhat helpful	27.6	44.7	2,563
Not very helpful	6.1	24.0	2,563
Not at all helpful	2.6	15.9	2,563
Missing	0.3	5.9	2,563

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the mean, standard deviation, and sample size for each outcome among all treatment group enrollees.

s = cell suppressed because it represents fewer than three people.

Exhibit B.4.3. Ohio RETAIN: Early impacts on enrollees' service use, by age (percentage unless otherwise noted)

Outcome measure	Younger than 50					50 and older					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	3.9	20.1***	0.00	1,069	1,050	5.2	17.6***	0.00	828	819	0.26
Talked with healthcare providers about how injury or illness affects ability to work	65.2	3.4**	0.05	1,077	1,048	66.3	5.3***	0.00	830	822	0.52
Used any employment-related support services	6.9	1.2	0.24	1,073	1,048	6.4	1.1	0.28	830	818	0.96
Participated in any job-related training	6.1	-1.5*	0.07	1,078	1,050	2.8	-0.1	0.83	832	820	0.27
Currently enrolled in school or taking any classes	10.4	-0.6	0.60	1,076	1,048	3.2	-0.6	0.37	831	821	0.99

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Ohio RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Ohio RETAIN was 83.9 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.4.4. Ohio RETAIN: Early impacts on enrollees' service use, by sex (percentage unless otherwise noted)

Outcome measure	Female					Male					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	4.2	20.1***	0.00	1,204	1,198	4.7	17.2***	0.00	693	671	0.21
Talked with healthcare providers about how injury or illness affects ability to work	65.7	3.4**	0.03	1,209	1,200	65.6	5.3**	0.01	698	670	0.55
Used any employment-related support services	6.8	0.1	0.89	1,209	1,196	6.6	2.7**	0.02	694	670	0.14
Participated in any job-related training	4.6	-1.3*	0.05	1,212	1,198	4.8	-0.3	0.74	698	672	0.47
Currently enrolled in school or taking any classes	7.9	-0.4	0.69	1,209	1,198	6.5	-0.8	0.45	698	671	0.79

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Ohio RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Ohio RETAIN was 83.9 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.4.5. Ohio RETAIN: Early impacts on enrollees' service use, by primary diagnosis (percentage unless otherwise noted)

	Musculoskeletal injuries					Non-musculoskeletal injuries					*p*-value for subgroup difference
Outcome measure	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	p-value	Treatment group N	Control group N	
Worked with a care or service coordinator	4.5	19.3***	0.00	1,524	1,505	3.8	17.8***	0.00	373	364	0.57
Talked with healthcare providers about how injury or illness affects ability to work	69.0	4.1***	0.00	1,532	1,506	52.1	4.0	0.20	375	364	0.98
Used any employment-related support services	6.6	0.6	0.48	1,528	1,503	7.6	3.1*	0.08	375	363	0.27
Participated in any job-related training	4.5	-1.0	0.10	1,534	1,507	5.5	-0.8	0.55	376	363	0.92
Currently enrolled in school or taking any classes	7.4	-0.9	0.24	1,532	1,505	7.1	1.2	0.47	375	364	0.33

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Ohio RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Ohio RETAIN was 83.9 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

5. Vermont RETAIN

Exhibit B.5.1. Vermont RETAIN: Early impacts on enrollees' service use, employment, and health (percentage unless otherwise noted)

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Use of services and training in the past 2 months							
Worked with a care or service coordinator	7.4	27.1***	0.00	2.8	1.143	376	293
Talked with healthcare providers about how their injury or illness affects their ability to work	73.9	1.8	0.62	3.5	0.056	378	293
Used any employment-related support services	17.0	19.4***	0.00	3.3	0.623	378	293
Participated in any job-related training	8.3	3.0	0.17	2.2	0.207	379	293
Currently enrolled in school or taking any classes	10.4	3.0	0.16	2.1	0.174	379	292
Labor force attachment and employment at the time of the survey							
Labor force attachment							
Connected to an employer	74.1	-0.5	0.85	2.7	-0.017	379	296
Connected to an employer or looking for work	93.3	-1.7	0.39	1.9	-0.145	379	296
Working	67.6	-0.7	0.82	3.2	-0.020	379	296
Working or engaged in occasional activities or side jobs	75.7	-2.1	0.44	2.7	-0.067	378	295
Not working but planning to return to work in the next 90 days	21.6	0.5	0.90	3.7	0.017	379	296
Employment characteristics							
Usual hours worked per week	23.1	-1.7	0.13	1.1	-0.097	379	296
Average weekly pay ($)	595	-59	0.19	45	-0.100	379	296
Working for an employer that offers health insurance	43.5	-7.9**	0.01	3.2	-0.202	379	296
Working for an employer that offers paid leave	50.6	-7.7**	0.01	3.1	-0.187	379	296
Working and received advice about modifying job or workplace	18.1	7.9***	0.01	2.8	0.280	379	296
Working and employer offered the chance to return to work with needed accommodations	32.5	0.6	0.87	3.5	0.015	379	296

Outcome measure	Control group mean	Impact	*p*-value	Standard error	Effect size	Treatment group sample size	Control group sample size
Health and functioning at the time of the survey							
Self-reported health is good, great, or excellent	15.6	1.4	0.63	2.9	0.062	378	293
Covered by health insurance	97.8	-1.8	0.18	1.4	-0.382	378	293
Number of poor physical health days in past month	13.4	0.3	0.65	0.8	0.032	378	293
Number of poor mental health days in past month	15.9	0.6	0.48	0.8	0.053	376	292
Pain score (range: 0 to 10)	4.1	0.2	0.30	0.2	0.068	377	290
Pain interfered with work most or all the time	45.4	3.0	0.36	3.2	0.072	379	293
Was prescribed opioid pain relievers	9.0	-1.3	0.50	2.0	-0.106	378	292

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Vermont RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies by outcomes because of item nonresponse. The response rate for the early follow-up survey for Vermont RETAIN was 84.7 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

s = cell suppressed because it represents fewer than three people.

Exhibit B.5.2. Vermont RETAIN: Treatment enrollees' perceptions and experiences

Perception or experience	Mean	Standard deviation	Sample size
Among enrollees who are on medical leave, reasons for being on leave			
Worried illness or injury will get worse if they return to work	79.4	40.9	43
Injury or illness is too severe	75.4	43.6	44
Doctor does not think they are ready to work	70.7	46.0	43
Cannot get help when needed with activities of daily living	7.1	26.1	42
Employer will not provide necessary supports, accommodations, or flexibility	37.4	48.9	43
No means of getting to work	13.8	34.9	43
Other reason	35.6	48.4	44
Missing	0.0	0.0	45
Among enrollees who are not working, reasons for not working			
Worried illness or injury will get worse if they return to work	67.3	47.1	173
Injury or illness is too severe	63.1	48.4	172
Doctor does not want them to work	20.3	40.4	171
Cannot get help when needed with activities of daily living	4.3	20.3	172
Employer will not provide necessary supports, accommodations, or flexibility	32.7	47.0	173
In school or training program	12.4	33.0	173
No work available or laid off	27.3	44.7	173
Fired or terminated from job	29.3	45.7	172
Other reason	22.5	41.9	174
Missing	s	s	s
Among enrollees who are working, type of accommodation offered by employer			
Reduced work hours or work week	32.2	46.8	326
A telecommuting arrangement	25.4	43.6	308
Additional breaks	31.1	46.3	325
A change in job duties	30.0	45.9	307
Changes to work space equipment, work location, or work environment	29.7	45.8	304
Other temporary change	2.0	13.9	307

Perception or experience	Mean	Standard deviation	Sample size
No accommodation	29.8	45.8	314
Missing	0.0	0.0	366
Among enrollees who worked with a care or service coordinator in the past two months, perceived usefulness of services provided			
Very useful	34.3	47.6	152
Somewhat useful	43.5	49.7	152
Not very useful	19.6	39.8	152
Not at all useful	s	s	s
Missing	s	s	s
Among enrollees who talked with healthcare providers in the past two months about how their injury or illness affects their ability to work, perceived helpfulness of provider services			
Extremely helpful	28.5	45.2	504
Somewhat helpful	44.2	49.7	504
Not very helpful	19.6	39.7	504
Not at all helpful	s	s	s
Missing	s	s	s

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the mean, standard deviation, and sample size for each outcome among all treatment group enrollees.

s = cell suppressed because it represents fewer than three people.

Exhibit B.5.3. Vermont RETAIN: Early impacts on enrollees' service use, by age (percentage unless otherwise noted)

Outcome measure	Younger than 50					50 and older					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	8.6	25.9***	0.00	258	179	4.7	30.4***	0.00	118	114	0.44
Talked with healthcare providers about how injury or illness affects ability to work	73.1	3.2	0.37	261	179	74.9	-0.2	0.97	117	114	0.63
Used any employment-related support services	18.0	15.6***	0.00	260	179	15.7	26.8***	0.00	118	114	0.10†
Participated in any job-related training	8.9	1.6	0.49	261	179	7.5	5.9*	0.06	118	114	0.37
Currently enrolled in school or taking any classes	13.8	1.9	0.43	261	179	3.3	6.3**	0.02	118	113	0.32

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Vermont RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Vermont RETAIN was 84.7 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.5.4. Vermont RETAIN: Early impacts on enrollees' service use, by sex (percentage unless otherwise noted)

Outcome measure	Female					Male[a]					*p*-value for subgroup difference
	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	6.8	26.0***	0.00	228	209	8.2	29.3***	0.00	148	84	0.61
Talked with healthcare providers about how injury or illness affects ability to work	75.0	-0.2	0.96	228	209	71.3	5.6	0.30	150	84	0.46
Used any employment-related support services	17.9	20.6***	0.00	229	209	15.7	17.0***	0.00	149	84	0.56
Participated in any job-related training	9.6	1.6	0.50	229	209	5.6	5.7*	0.06	150	84	0.39
Currently enrolled in school or taking any classes	12.3	2.1	0.41	229	209	6.6	4.8	0.14	150	83	0.62

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Vermont RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Vermont RETAIN was 84.7 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

[a] The male category includes a small number of people who did not select male or female in response to this question.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

Exhibit B.5.5. Vermont RETAIN: Early impacts on enrollees' service use, by primary diagnosis (percentage unless otherwise noted)

	Musculoskeletal injuries					Non-musculoskeletal injuries					*p*-value for subgroup difference
Outcome measure	Control mean	Impact	*p*-value	Treatment group N	Control group N	Control mean	Impact	*p*-value	Treatment group N	Control group N	
Worked with a care or service coordinator	6.2	34.9***	0.00	120	99	8.0	23.5***	0.00	256	194	0.07†
Talked with healthcare providers about how injury or illness affects ability to work	76.3	5.3	0.31	120	99	72.9	0.0	0.99	258	194	0.45
Used any employment-related support services	18.7	19.5***	0.00	120	99	16.0	19.7***	0.00	258	194	0.97
Participated in any job-related training	3.5	13.3***	0.00	120	99	10.7	-1.8	0.43	259	194	0.00†††
Currently enrolled in school or taking any classes	10.5	11.5***	0.00	120	99	10.5	-1.1	0.61	259	193	0.01††

Source: RETAIN enrollment data and early follow-up survey.

Note: Outcome measures reflect enrollees' self-reported use of services during the two months before the early follow-up survey. This table shows the regression-adjusted means for the control group (the estimate of the counterfactual) and the regression-adjusted estimates of Vermont RETAIN's impacts. To calculate the adjusted mean for the treatment group, add the impact estimate and the adjusted mean for the control group. The sample size varies across outcomes depending on item nonresponse. The response rate for the early follow-up survey for Vermont RETAIN was 84.7 percent. We weighted the statistics to adjust for survey nonresponse. The *p*-value for a continuous or binary variable is based on a two-tailed *t*-test.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level.

†/††/††† Impact estimates for subgroups are significantly different from each other (*p*-value is less than .10/.05/.01) using an adjusted Wald test.

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Appendix C

Sensitivity Tests

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We conducted several checks to assess the sensitivity of the impact estimates to different modeling approaches: (1) use of nonresponse weights, (2) covariate adjustment, and (3) multiple imputation. We describe the tests and findings below, and present detailed results in Exhibits C.1–C.5.

A. Sensitivity to use of nonresponse weights

As described in Appendix A, Section A.2.b, in the main impact estimation models, we used weights to adjust the survey data for nonresponse. However, nonresponse weights might not reduce nonresponse bias if the assumptions underlying the calculations of the weights did not adequately reflect the mechanisms that cause survey nonresponse. In addition, large variability in the nonresponse weights could increase the variance of the estimates. For these reasons, we produced estimates of each program's impacts without nonresponse weights to compare them to the main impact findings.

In general, the impact estimates for each RETAIN program were similar with and without the use of nonresponse weights. Across all states, there were small variations in the point estimates, but the detected program impacts remained statistically significant regardless of the use of weights.

B. Sensitivity to covariate adjustment

As described in Appendix A, Section C, we used covariate adjustment when estimating program impacts to increase the precision of estimates and control for differences in the baseline characteristics of the treatment and control groups that might have occurred by chance. However, in some situations, covariate adjustment might reduce precision: for example, if irrelevant or highly correlated covariates or too many covariates are included. We produced estimates of program impacts with and without regression adjustment to assess the sensitivity of the findings to the adjustment.

The impact estimates for each program were similar when either adjusting by covariates or not, which is expected in a randomized study. For all five programs, most point estimates were identical or varied by only a few decimal points. A few differences from the adjusted estimates include the following: RETAINWOR*KS*'s impact on working and employer offered the chance to return to work with needed accommodations were not statistically significant; MN RETAIN's impact on health insurance coverage was not statistically significant; OH RETAIN's impact on working for an employer that offered paid leave was not statistically significant; and VT RETAIN's impacts on working for an employer that offered health insurance, and working for an employer that offered paid leave were not statistically significant, and its impact on being enrolled in school or taking classes was statistically significant. In all of these cases, the point estimates were similar when either using covariate adjustment or not, but the standard errors differed.

C. Sensitivity to multiple imputation of conditionally missing data

As described in Appendix A, Section A.2.c, in the main impact estimation models, we used multiple imputation to address missing data for outcomes for which information could be missing only conditional on another outcome. To assess the sensitivity of the results to the use of multiple imputation, we estimated alternative models that did not use imputed data for outcomes that underwent multiple imputation.

Overall, we found that the impacts estimated based on data that had not undergone multiple imputation were similar to those estimated by the main model. One difference was that when we did not conduct multiple imputation, MN RETAIN's impact on average weekly pay was negative and statistically significant. However, the reader should interpret these findings with caution because they might be biased: impact estimates without multiple imputation include all non-employed individuals while excluding employed individuals with missing data on wages. To the extent that a RETAIN program might have affected the share and composition of employed people among enrollees, it might have affected the share and composition of people with missing data. All other impact estimates remained significant with only small changes to the point estimates.

Exhibit C.1. RETAINWOR*KS*: Early impacts on enrollees' service use, employment, and health outcomes, by estimation approach (percentage unless otherwise noted)

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Use of services and training since enrollment in RETAIN				
Worked with a care or service coordinator	33.7***	33.7***	33.9***	n.a.
Talked with healthcare providers about how injury or illness affects ability to work	5.9*	6.0*	6.1*	n.a.
Used any employment-related support services	21.9***	21.9***	21.9***	n.a.
Participated in any job-related training	3.7**	3.5**	3.5**	n.a.
Currently enrolled in school or taking any classes	2.7	2.6	1.7	n.a.
Labor force attachment and employment at the time of the survey				
Labor force attachment				
Connected to an employer	1.1	1.1	-0.4	n.a.
Connected to an employer or looking for work	5.4***	5.4***	4.7**	5.4***
Working	4.0	3.9	2.4	n.a.
Working or engaged in occasional activities or side jobs	2.6	2.6	1.7	n.a.
Not working but planning to return to work in the next 90 days	-0.8	-0.8	0.7	-1.2
Employment characteristics				
Usual hours worked	1.2	1.2	0.8	1.2
Average weekly pay ($)	23	23	15	21
Working for an employer that offers health insurance	3.8	3.8	2.4	4.4
Working for an employer that offers paid leave	4.2	4.2	2.4	4.2
Working and received advice about modifying job or workplace	14.7***	14.7***	14.0***	14.6***
Working and employer offered the chance to return to work with needed accommodations	5.5*	5.4*	4.9	5.6*
Health and functioning at the time of the survey				
Self-reported health is good, great, or excellent	2.4	2.5	2.2	n.a.
Covered by health insurance	0.1	0.1	1.3	n.a.
Number of poor physical health days in past month	-1.4*	-1.4*	-1.4*	n.a.

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Number of poor mental health days in past month	-1.1	-1.1	-1.1	n.a.
Pain score (range: 0 to 10)	-0.2	-0.2	-0.2	n.a.
Pain interfered with work most or all the time	-6.1*	-6.1*	-5.9*	n.a.
Was prescribed opioid pain relievers	-12.3***	-12.4***	-12.0***	n.a.

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the impact estimates of RETAINWOR*KS*, using different modeling approaches. In the main model, we used covariate adjustment and weighted statistics to adjust for survey non-response; we also used multiple imputation when an outcome had a missing value conditional on the value of another variable. In the model with "No weighting for non-response," we followed the main model but did not apply weights for non-response. In the model with "No covariate adjustment," we followed the main model but did not include covariates. In the model with "No multiple imputation," we followed the main model while excluding cases with outcomes that had a missing value conditional on the value of another variable. This resulted in our dropping between 0.0 percent to 2.4 percent of observations for these outcomes.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level using a two-tailed *t*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people.

Exhibit C.2. RETAIN Kentucky: Early impacts on enrollees' service use, employment, and health outcomes, by estimation approach (percentage unless otherwise noted)

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Use of services and training since enrollment in RETAIN				
Worked with a care or service coordinator	12.4***	12.7***	12.6***	n.a.
Talked with healthcare providers about how injury or illness affects ability to work	1.0	1.2	1.5	n.a.
Used any employment-related support services	10.7***	10.7***	10.8***	n.a.
Participated in any job-related training	-0.5	-0.5	-0.8	n.a.
Currently enrolled in school or taking any classes	-0.7	-0.7	-1.2	n.a.
Labor force attachment and employment at the time of the survey				
Labor force attachment				
Connected to an employer	-1.0	-1.1	-0.1	n.a.
Connected to an employer or looking for work	-1.4	-1.5	-1.1	-1.4
Working	0.7	0.7	1.2	n.a.
Working or engaged in occasional activities or side jobs	0.9	0.8	1.5	n.a.
Not working but planning to return to work in the next 90 days	-1.0	-1.0	-1.2	-1.3
Employment characteristics				
Usual hours worked	0.5	0.5	0.8	0.6
Average weekly pay ($)	12	12	24	13
Working for an employer that offers health insurance	2.2	2.2	3.0	1.8
Working for an employer that offers paid leave	1.7	1.7	2.4	1.4
Working and received advice about modifying job or workplace	4.1***	4.1***	4.5***	4.1***
Working and employer offered the chance to return to work with needed accommodations	-0.8	-0.9	-0.4	-0.8
Health and functioning at the time of the survey				
Self-reported health is good, great, or excellent	-0.2	-0.2	-0.3	n.a.
Covered by health insurance	-0.1	0.0	0.0	n.a.
Number of poor physical health days in past month	0.2	0.2	0.1	n.a.

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Number of poor mental health days in past month	0.2	0.2	0.0	n.a.
Pain score (range: 0 to 10)	-0.1	-0.1	-0.1	n.a.
Pain interfered with work most or all the time	-1.8	-1.8	-2.0	n.a.
Was prescribed opioid pain relievers	-1.8	-2.1	-1.9	n.a.

Source: RETAIN enrollment data and two-month enrollee surveys.

Note: This table shows the impact estimates of RETAIN Kentucky, using different modeling approaches. In the main model, we used covariate adjustment and weighted statistics to adjust for survey non-response; we also used multiple imputation when an outcome had a missing value conditional on the value of another variable. In the model with "No weighting for non-response," we followed the main model but did not apply weights for non-response. In the model with "No covariate adjustment," we followed the main model but did not include covariates. In the model with "No multiple imputation," we followed the main model while excluding cases with outcomes that had a missing value conditional on the value of another variable. This resulted in our dropping between 0.0 percent to 3.9 percent of observations for these outcomes.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level using a two-tailed *t*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people.

Exhibit C.3. Minnesota RETAIN: Early impacts on enrollees' service use, employment, and health outcomes, by estimation approach (percentage unless otherwise noted)

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Use of services and training since enrollment in RETAIN				
Worked with a care or service coordinator	31.4***	31.9***	31.4***	n.a.
Talked with healthcare providers about how injury or illness affects ability to work	3.6**	3.9**	3.3*	n.a.
Used any employment-related support services	15.4***	15.4***	15.3***	n.a.
Participated in any job-related training	2.4**	2.4**	2.4**	n.a.
Currently enrolled in school or taking any classes	0.1	0.1	0.2	n.a.
Labor force attachment and employment at the time of the survey				
Labor force attachment				
Connected to an employer	-1.1	-1.1	-1.6	n.a.
Connected to an employer or looking for work	0.4	0.4	0.4	0.4
Working	-4.4**	-4.5**	-4.7**	n.a.
Working or engaged in occasional activities or side jobs	-3.4*	-3.6**	-3.7**	n.a.
Not working but planning to return to work in the next 90 days	5.2***	5.1***	5.1***	5.7***
Employment characteristics				
Usual hours worked	-1.8***	-1.9***	-1.9**	-1.8***
Average weekly pay ($)	-40	-42	-43	-42*
Working for an employer that offers health insurance	-3.7**	-3.8**	-3.6*	-3.8**
Working for an employer that offers paid leave	-3.6**	-3.7**	-3.6*	-3.9**
Working and received advice about modifying job or workplace	2.6*	2.7*	2.7*	2.7*
Working and employer offered the chance to return to work with needed accommodations	-1.8	-1.8	-1.8	-1.9
Health and functioning at the time of the survey				
Self-reported health is good, great, or excellent	0.2	0.2	-0.2	n.a.
Covered by health insurance	1.5*	1.5*	1.4	n.a.
Number of poor physical health days in past month	-0.6	-0.6	-0.5	n.a.

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Number of poor mental health days in past month	0.0	0.0	0.1	n.a.
Pain score (range: 0 to 10)	0.0	0.0	0.0	n.a.
Pain interfered with work most or all the time	1.6	1.8	2.0	n.a.
Was prescribed opioid pain relievers	-0.2	-0.1	0.0	n.a.

Source: RETAIN enrollment data and two-month enrollee surveys.

Note: This table shows the impact estimates of Minnesota RETAIN, using different modeling approaches. In the main model, we used covariate adjustment and weighted statistics to adjust for survey non-response; we also used multiple imputation when an outcome had a missing value conditional on the value of another variable. In the model with "No weighting for non-response," we followed the main model but did not apply weights for non-response. In the model with "No covariate adjustment," we followed the main model but did not include covariates. In the model with "No multiple imputation," we followed the main model while excluding cases with outcomes that had a missing value conditional on the value of another variable. This resulted in our dropping between 0.0 percent to 2.6 percent of observations for these outcomes.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level using a two-tailed *t*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people.

Exhibit C.4. Ohio RETAIN: Early impacts on enrollees' service use, employment, and health outcomes, by estimation approach (percentage unless otherwise noted)

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Use of services and training since enrollment in RETAIN				
Worked with a care or service coordinator	19.0***	18.8***	19.0***	n.a.
Talked with healthcare providers about how injury or illness affects ability to work	4.1***	4.0***	4.0***	n.a.
Used any employment-related support services	1.1	1.0	1.1	n.a.
Participated in any job-related training	-1.0	-1.0	-1.0	n.a.
Currently enrolled in school or taking any classes	-0.5	-0.5	-0.5	n.a.
Labor force attachment and employment at the time of the survey				
Labor force attachment				
Connected to an employer	0.3	0.2	0.6	n.a.
Connected to an employer or looking for work	-0.5	-0.6	-0.3	-0.5
Working	-3.2**	-3.3**	-2.7*	n.a.
Working or engaged in occasional activities or side jobs	-4.3***	-4.4***	-3.9**	n.a.
Not working but planning to return to work in the next 90 days	3.2**	3.3**	3.0**	3.2**
Employment characteristics				
Usual hours worked	-1.6***	-1.7***	-1.5**	-1.6***
Average weekly pay ($)	-43**	-43**	-42*	-42**
Working for an employer that offers health insurance	-2.4	-2.3	-2.3	-2.5*
Working for an employer that offers paid leave	-2.8*	-2.8*	-2.8*	-2.7*
Working and received advice about modifying job or workplace	2.1*	2.2**	2.3**	2.1*
Working and employer offered the chance to return to work with needed accommodations	-0.7	-0.8	-0.3	-0.8
Health and functioning at the time of the survey				
Self-reported health is good, great, or excellent	0.1	0.0	0.4	n.a.
Covered by health insurance	0.0	0.0	-0.1	n.a.
Number of poor physical health days in past month	-0.1	-0.1	-0.2	n.a.

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Number of poor mental health days in past month	-0.3	-0.3	-0.4	n.a.
Pain score (range: 0 to 10)	0.0	0.0	-0.1	n.a.
Pain interfered with work most or all the time	0.1	0.0	0.0	n.a.
Was prescribed opioid pain relievers	-1.4	-1.3	-1.5	n.a.

Source: RETAIN enrollment data and two-month enrollee surveys.

Note: This table shows the impact estimates of Ohio RETAIN, using different modeling approaches. In the main model, we used covariate adjustment and weighted statistics to adjust for survey non-response; we also used multiple imputation when an outcome had a missing value conditional on the value of another variable. In the model with "No weighting for non-response," we followed the main model but did not apply weights for non-response. In the model with "No covariate adjustment," we followed the main model but did not include covariates. In the model with "No multiple imputation," we followed the main model while excluding cases with outcomes that had a missing value conditional on the value of another variable. This resulted in our dropping between 0.0 percent to 2.8 percent of observations for these outcomes.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level using a two-tailed *t*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people.

Exhibit C.5. Vermont RETAIN: Early impacts on enrollees' service use, employment, and health outcomes, by estimation approach (percentage unless otherwise noted)

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Use of services and training since enrollment in RETAIN				
Worked with a care or service coordinator	27.1***	27.3***	28.1***	n.a.
Talked with healthcare providers about how injury or illness affects ability to work	1.8	1.5	3.7	n.a.
Used any employment-related support services	19.4***	19.2***	19.4***	n.a.
Participated in any job-related training	3.0	2.7	2.6	n.a.
Currently enrolled in school or taking any classes	3.0	3.1	3.7*	n.a.
Labor force attachment and employment at the time of the survey				
Labor force attachment				
Connected to an employer	-0.5	-0.5	-0.3	n.a.
Connected to an employer or looking for work	-1.7	-1.5	-1.0	-1.6
Working	-0.7	-0.7	-0.1	n.a.
Working or engaged in occasional activities or side jobs	-2.1	-2.0	-1.0	n.a.
Not working but planning to return to work in the next 90 days	0.5	0.6	0.9	0.2
Employment characteristics				
Usual hours worked	-1.7	-1.7	-1.1	-1.7
Average weekly pay ($)	-59	-58	-37	-58
Working for an employer that offers health insurance	-7.9**	-7.8**	-6.6	-7.9**
Working for an employer that offers paid leave	-7.7**	-7.6**	-6.8	-8.3***
Working and received advice about modifying job or workplace	7.9***	7.7***	7.2**	7.9***
Working and employer offered the chance to return to work with needed accommodations	0.6	0.7	0.8	0.7
Health and functioning at the time of the survey				
Self-reported health is good, great, or excellent	1.4	1.4	1.8	n.a.
Covered by health insurance	-1.8	-1.7	-2.0	n.a.
Number of poor physical health days in past month	0.3	0.4	-0.1	n.a.

Outcome measure	Main model	No weighting for non-response	No covariate adjustment	No imputation
Number of poor mental health days in past month	0.6	0.6	1.0	n.a.
Pain score (range: 0 to 10)	0.2	0.2	0.1	n.a.
Pain interfered with work most or all the time	3.0	2.9	0.9	n.a.
Was prescribed opioid pain relievers	-1.3	-1.4	-3.1	n.a.

Source: RETAIN enrollment data and early follow-up survey.

Note: This table shows the impact estimates of Vermont RETAIN, using different modeling approaches. In the main model, we used covariate adjustment and weighted statistics to adjust for survey non-response; we also used multiple imputation when an outcome had a missing value conditional on the value of another variable. In the model with "No weighting for non-response," we followed the main model but did not apply weights for non-response. In the model with "No covariate adjustment," we followed the main model but did not include covariates. In the model with "No multiple imputation," we followed the main model while excluding cases with outcomes that had a missing value conditional on the value of another variable. This resulted in our dropping between 0.0 percent to 3.3 percent of observations for these outcomes.

*/**/*** Impact estimate is significantly different from zero at the .10/.05/.01 level using a two-tailed *t*-test.

n.a. = not applicable; s = cell suppressed because it represents fewer than three people.

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